

REVIEW

How Do Adolescents See Their Future? A Review of the Development of Future Orientation and Planning

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Research on how adolescents see their future is reviewed with reference to the three basic processes involved in orientation to the future: motivation, planning, and evaluation. The results suggest that adolescents' goals and interests concern the major developmental tasks of late adolescence and early adulthood, reflecting anticipated life-span development. Such anticipation accounts for a sizeable number of the age, sex, socioeconomic status, and cultural differences in the content and temporal extension of future orientation. The review also showed that the levels of planning and internality concerning the future increase with age. Family context was also found to influence adolescents' future-oriented interests, plans, causal attributions, and affects. Finally, directions for future research are identified. © 1991 Academic Press, Inc.

A major feature of human thinking and acting is orientation toward future events and outcomes. This feature has recently been the subject of increasing attention in psychological theories (Bandura, 1986; Neisser, 1976). However, even though future events motivate everyday behavior over a life-time, thinking and planning for the future are particularly important for young people for several reasons. First, adolescents are faced with a number of normative age-specific tasks (Dittmann-Kohli, 1986; Havighurst, 1948/1974), set by their parents, peers, and teachers, most of which concern expected life-span development and which, therefore, emphasize the importance of thinking about the future. Second, adolescents' future-oriented decisions, such as those related to career, life-style, and future family, crucially influence their later adult life. Third, how adolescents see their future plays an important part in their identity formation, which is often defined in terms of exploration and commitment concerning future-oriented interests (Bosma, 1985; Marcia, 1980). Moreover, adolescent problem behavior, such as delinquency, problems in career choice, and drug abuse, can be expected to be related to how young people see their future.

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The majority of studies on future orientation and planning concern late childhood and adolescence which reflects the importance of the future for that age group. Gillispie and Allport (1955) compared students' outlook toward the future in 10 countries in the early 1950s. Since then, dozens of studies have been published on the topic. However, in spite of the vast amount of research in this area, we do not know too much about how adolescents see their future. Reviews have typically concluded that findings are contradictory (e.g., de Volder, 1979). In addition, researchers have suggested that the methods used lack reliability and validity, and are partly responsible for the conflicting results (Perlman, 1976; Ruiz, Reivich, & Krauss, 1967).

My purpose in writing this review is to develop some conception of adolescents' orientation to the future. A theoretical framework is constructed and used to categorize previous research material. The major questions to be answered are the following: What goals and interests do adolescents have in the future? How far into the future does their thinking extend? How good are they at planning their future? How do young people see their chances of influencing expected future events and how do they feel about the future? How do these different aspects of thinking about the future develop during adolescence? And, finally, what are the major factors in the social context that influence this development?

Interestingly, psychological theories have recently focused increasingly on orientation to the future. Bandura (1986, p. 19) stressed forethought capability as one of the basic features of human thinking. Neisser (1976, p. 22) discussed anticipation as one of the main functions of schemata and Oppenheimer (1987, p. 357) underlined future orientation as a major characteristic of goal-directed behavior. Although the time span considered in these theories is rather short, seconds, minutes, and hours, their major ideas also apply to people's everyday thinking extending over longer periods, such as weeks, months, years, even decades. In this review, a new framework based on cognitive psychology, action theory, and life span approach is constructed. Later on, this framework is used to reorganize and reinterpret the research field of adolescents' future orientation and planning, which is full of conflicting results, as mentioned above.

The framework suggests that orientation to the future is a complex and multistage process that must be conceptualized in relational terms (Nuttin, 1984) which simultaneously refer to person-related and contextual properties. On this basis, future orientation is described in terms of three major psychological processes, motivation, planning, and evaluation. First, people set goals based on comparison between their motives and values and their expectations concerning the future. Next, they work out how to realize these goals. This is typically done by means of planning and problem solving. Finally, people evaluate the possibility of achieving their goals and actualizing the plans they have constructed. Causal attri-

butions and affects concerning the future are thought to play an important part in this evaluation. Furthermore, the role of knowledge about the expected life span is emphasized, because that provides information about the possible objectives of future-oriented goals, the context in which these goals will be realized, and the extent to which people can control the realization. When adolescents explore future opportunities, set goals, and realize them, they simultaneously develop their own identity.

This forms the basis for the review of studies on adolescents' orientation to the future. In order to give a coherent impression of the research field, only investigations that provide data about the three processes involved in the framework, i.e., *content* and *extension* of adolescents' interests and concerns, the level of their *planning activity*, and *the related causal attributions* and *affects*, are considered. In practice, this means that all the studies in which abstract or projective methods are used (see Hoornaert, 1973) and which do not refer to the concrete contents of adolescents' interests and concerns are excluded. Referring to the validity problems in this research field, Perlman (1976) suggested that the content of the thinking should always be considered when orientation to the future is studied.

Once the conceptual framework has been introduced, studies on adolescents' orientation to the future are summarized. The review shows that their thinking about the future reflects their anticipated life-span development in a number of ways: Their goals and interests seem to concern the major developmental tasks they expect to be realized at the end of the second and the beginning of the third decade of life, during late adolescence, and early adulthood. Such expectations are also shown to account for a sizeable number of age, sex, social class, and cultural differences in content and temporal extension of orientation to the future. Furthermore, it will be shown that the level of planning increases until the end of the second decade of life and, in addition, that the level of internality concerning the future increases with age. Following the summary of these studies, a few pertinent research fields, such as identity formation and career decision making, are briefly examined. Finally, research concerning the relationship between orientation to the future and problem behavior is reviewed. Since a theoretical framework is used, this will be introduced first.

CONCEPTUALIZATION OF ORIENTATION TO THE FUTURE

The Psychological Basis

One of the major functions of cognitive schemata is to orient individuals to change in the context of future activities. As suggested by Neisser

(1976, p. 22), expectations based on schemata are "the medium by which the past affects the future." The role of expectations in directing human behavior has recently been emphasized by other researchers as well (e.g., Bandura, 1986; Markus & Wurf, 1987).

However, people not only anticipate future events and outcomes, they also give them personal meanings. For example, as people anticipate career changes with age, they also evaluate the changes they would like to be actualized. Similarly, they relate personal standards to these events (Bandura, 1986). Consequently, like schemata, interests and motives also have a reference to future events (Nuttin, 1984).

In addition to being able to anticipate and become interested in the future, people are also able to make judgments about expected future events and behavior outcomes. Furthermore, they often construct complex means-end structures based on the relationships of future events (Cottle & Klineberg, 1974). In all, human ability to anticipate future events, to give them personal meaning, and to operate with them mentally provides a basis for people's orientation to the future.

Three Processes

Orientation to the future is a complex, multidimensional, and multi-stage phenomenon. According to the basic ideas of cognitive psychology (Bandura, 1986; Neisser, 1976; Weiner, 1985) and action theory (Leontiev, 1979; Nuttin, 1984), future orientation is described here in terms of three processes, *motivation*, *planning*, and *evaluation* (see also Nurmi, 1989c). In the model, motivation refers to *what* interests people have in the future. Planning activity, on the other hand, refers to *how* people plan the realization of their interests in a future context (Nuttin, 1974, 1984). Finally, evaluation concerns the *extent to which* the interests are expected to be realized.

Future orientation can also be characterized as a three-stage process which interacts with the schemata concerning the future and anticipated self-development. A general overview of these three processes is presented in Fig. 1. First, people set their goals based on comparisons between general motives and values and the knowledge they have about their anticipated life-span development. Second, after people have set their goals, planning activity is required in order to realize them. Knowledge about the expected context of future activities provides a basis for this planning. Finally, opportunities to realize the goals set and plans constructed are evaluated (see also Markus & Wurf, 1987). Following Weiner's (1985) ideas, it is suggested in this investigation that causal attributions and affects concerning the future constitute this third process of orientation. In the next sections, the processes involved in orientation to the future are considered in detail.

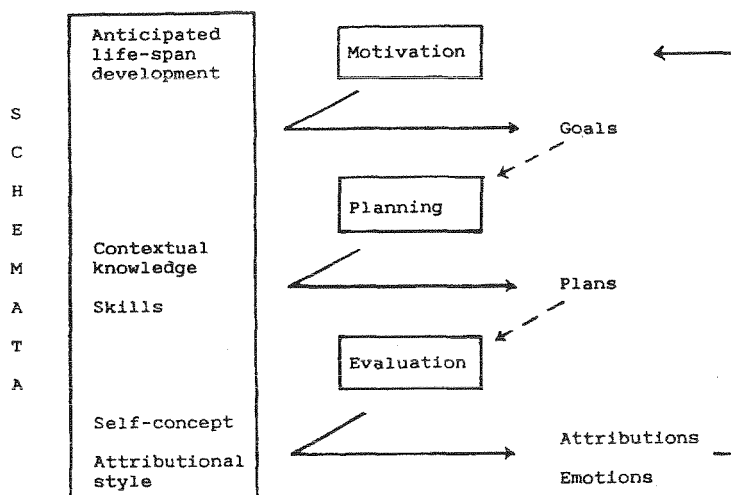


FIG. 1. Orientation to the future in terms of the three processes involved.

Future-oriented motives, interests, and goals. Most of the motives, interests, and goals people have are future-oriented, i.e., they refer to anticipated future events and objectives (Nuttin, 1974, 1984). Since future events and objectives are represented as expectations concerning the future, the knowledge on which these expectations are based plays an important role in the development of future-oriented motivation. In order to set realistic goals, general motives and values have to be compared to knowledge concerning the future. By exploring knowledge related to motives and values, people are able to make their interests more specific. Similarly, Markus and Wurf (1987) recently described goal-setting as comparison between motives or values and the expectations people have about the future.

People's motives, interests, strivings, and goals have recently been characterized as a motivational system consisting of a complex hierarchy, the levels of which are assumed to differ according to the generality and abstractness of the intentions involved (Emmons, 1986; Lazarus & Folkman, 1987; Leontiev, 1979). The major principle behind this framework is that the higher level motives, values, or strivings are realized via lower level goals, which are further worked out through a number of subgoals. Lower level goals constitute, in fact, the strategy by which the realization of the higher level motives is planned. On the other hand, higher level personal motives and strivings organize and integrate the lower level goals into hierarchical structures. It is also typical of the goal-hierarchy that higher level goals are less related to specific knowledge concerning the future than lower level goals.

Future-oriented planning. The second major process involved in orientation to the future concerns how people plan the realization of their aims, interests, and goals. Although they may already have realization strategies or procedural knowledge related to their goals, planning and problem-solving are normally required (Cantor & Kihlstrom, 1987; Nuttin, 1984). In the frameworks of cognitive psychology and action theory, planning has recently been characterized as a process consisting of setting subgoals, constructing plans, and realizing these plans (Hacker, 1985; Nuttin, 1984; Pea & Hawkins, 1987). These three stages can be applied to planning the future as follows.

First, individuals have to construct a representation of both the goal and the future context in which the goal is expected to be realized. Both of these anticipatory representations are based on the knowledge people have about the context of future activities and they provide a basis for the next two phases of planning.

Second, people have to construct a plan, project, or strategy for achieving the goal within the chosen context. Constructing a plan is similar to the process of problem solving: The individual must invent the paths which lead to goal achievement and then decide which of them is most efficient. A comparison of different solutions may be carried out either by thinking or acting. However, since people's interests often extend over years, even decades, action is not possible and, therefore, different action routes have to be evaluated mentally according to how likely it is that they will lead to the achievement of the goal.

The third phase of planning activity is the execution of the plans and strategies constructed. As with general planning, the execution of plans and strategies is also controlled by comparing the representation of the goal and the actual context. In other words, a person taking steps toward a future goal has to check during the course of the action that the original aim is being approached in a systematic way. If not, the plans must be changed (Miller, Galanter, & Pribram, 1960).

Evaluation of the future. Finally, people also have to evaluate the realizability of the goals they set and the plans they construct. It is suggested here that *causal attributions* and *affects* concerning future events constitute the third process of orientation to the future, since they are both included in evaluating the possibilities of realizing future-oriented goals and plans. While causal attributions are based on a conscious cognitive evaluation of people's opportunities of controlling their future, affects are responsible for more immediate and also unconscious types of evaluation.

Weiner (1985) recently proposed a model according to which the attribution-emotion process is responsible for evaluating behavior outcomes. The model suggests that the attribution of success and failure to specific

causes is followed by specific emotions. Although it mainly concerns the evaluation of past outcomes, it can also be applied to thinking about the future. For example, the attribution of future success to internal and controllable causes can be expected to be followed by feelings of optimism. In contrast, the attribution of future failure to external and uncontrollable causes should be followed by pessimism. Weiner (1985) himself suggests that the stability dimension of causal attribution determines the hopefulness related to goal attainment: hopefulness is elicited given that a positive outcome is attributed to stable causes.

Brandtstädter (1984) recently described evaluation as a complex multistage process: first, anticipated developmental changes are assessed in relation to personal values and goals. Then, the expected outcomes are evaluated according to the extent to which they are satisfactory. Next, they are assessed according to how controllable they are and, finally, according to how much control people think they have over this life domain. Brandtstädter, like Weiner (1985), suggests that each stage of evaluation is followed by a specific affect.

The evaluation process concerns the extent to which people themselves are able to influence and have power over their future. Self-concept therefore plays an important role (Marsh, Cairns, Relich, Barnes, & Debus, 1984): people evaluate their chances of realizing their goals and plans according to their present view of their capabilities (Fig. 1). A few studies also seem to show that people with high self-esteem are more internal in their thinking about the future than those with low self-esteem (Nurmi, 1989d; Plante, 1977).

Future orientation as a system. Orientation to the future is depicted in Fig. 1 as a three-stage process consisting of setting goals, planning their actualization and, finally, evaluating their realizability. However, it must be remembered that these three stages are related in a variety of ways. First, as suggested by Bandura (1986), goals and personal standards provide a basis upon which people evaluate their performance: goal attainments build up a positive self-concept and internal attributional beliefs. Second, the effectiveness of the plans constructed influences the attainment outcome and, therefore, self-evaluation as well. Third, as the arrow in Fig. 1 indicates, how people evaluate the causes of their success and failure in turn affects the goals and aspirations they set later (Bandura, 1986). Internal attributions concerning a specific future event and related positive affects (Weiner, 1985) are likely to increase interests in this event and the tendency to set high-level related goals.

It is also possible that future-orientation is part of a larger behavioral system that characterizes the whole range of future-oriented everyday behavior. Several researchers have recently discussed strategies by which people respond to the situational demands they face during their

life. For example, Cantor and her colleagues (Cantor & Kihlstrom, 1987; Cantor, Norem, Niedenthal, Langston, & Brower, 1987) differentiated two types of achievement strategy among college honors students. The optimistic strategy was characterized by straightforward striving for success based on high expectations derived from positive past experience and a desire to enhance an already strong image of competence. In contrast, typical of students using a pessimistic strategy was setting defensively low expectations, in spite of good past performance, and feeling very anxious and out of control before performance. Jones and Berglas (1978) also described a self-handicapping strategy in the context of underachievement and alcohol use. According to them, the individual using a self-handicapping strategy works to avoid any unequivocal feedback about low ability in important tasks by setting up a protective "attributional environment" before any outcome is known. This is typically built up by acting in a way that provides an excuse for future failure beforehand. In each of these strategies, the goal-setting and planning stages are particularly influenced by the attributional tendencies and self-concept involved in the evaluation of future possibilities.

DEVELOPMENT OF ORIENTATION TO THE FUTURE

The development of future-oriented motivation, planning, and evaluation is a complex, multilevel, and long-lasting process. Three important aspects of it are considered here. First, future orientation develops in cultural and institutional contexts: normative expectations and knowledge concerning the future provide a basis for future-oriented interests and plans, and related causal attributions and affects (Nurmi, 1989a). Second, interests, plans, and beliefs concerning the future are learned in social interaction with other people. Parents, in particular, but also peers, influence how adolescents think about and plan for the future (Kandel & Lesser, 1969). Third, future orientation may well be influenced by other psychological factors, such as cognitive and social development. A detailed discussion about these three issues follows.

Developmental Tasks and Knowledge Concerning Anticipated Life-Span Development

The developmental differences in cultural norms, expectations, rules, and activity patterns have been characterized as *developmental tasks* (Havighurst, 1948/1974) or *normative life-tasks* (Cantor & Kihlstrom, 1987; Dittmann-Kohli, 1986). These tasks typically provide (1) knowledge about possible and desired age-specific developmental goals, (2) models for how these goals can be successfully achieved, and (3) normative standards and deadlines for appropriate behavior. Typical developmental tasks of late adolescence include forming sex-role identity, making a ca-

reer choice, and acquiring autonomy from parents. During early adulthood, on the other hand, the major developmental tasks are related to marriage, childbearing, work, and life-style (Newman & Newman, 1975).

The development of orientation to the future can be described from a contextual point of view as follows (see Fig. 2). First, normative life-events, related developmental tasks, and their time-table provide a context in which people's future-oriented goals and interests develop. As will be shown in detail later, adolescents' interests typically concern the developmental tasks of that specific age (Nurmi, 1987b, 1989b). Second, life-span-related changes in action opportunities and age-specific models for solving the developmental tasks provide a basis for the development of future-oriented plans and strategies. Finally, standards and deadlines for the successful solution of life-tasks form a basis for the evaluation process involved in orientation to the future. For example, cultural norms involve age-specific standards and deadlines for appropriate ways of solving the developmental task of intimacy, such as knowledge about approved and desirable forms and the age at which dating or living with a member of the opposite sex can begin. It is suggested here that knowledge concerning anticipated life-span development, the context of future activities, and related role models and standards mediate the influence of cultural context.

Developmental tasks and related normative anticipations vary according to a number of factors in addition to age, such as culture, sex, level of education, and socioeconomic status (Dannefer, 1984). Later on, the possibility that the influence of these factors on future-orientation is based on differences in anticipated life-span development is discussed.

Development of Future Orientation in the Family Context

The specific environment in which adolescents live also affects how

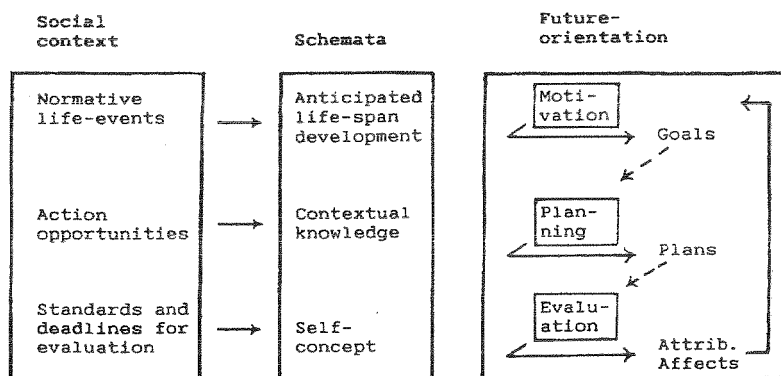


FIG. 2. A contextual approach to adolescents' orientation to the future.

their thinking about the future develops. Parental influence is at least two-fold. Methods of tutoring children provide the basis for the acquisition of basic skills which are also significant in orientation to the future. Later on, during late childhood and adolescence, parental encouragement, role models, and familial support influence the kind of future-oriented goals and plans, and related causal attributions, children construct.

Learning the basis for goal-setting, planning, and evaluation during childhood. One promising framework for investigating the development of future orientation during childhood is Vygotsky's (1978) idea that psychological functions develop from interpersonal processes to intrapersonal ones (see also Heckhausen, 1987; McGillicuddy-De Lisi, Flaughner, & Sigel, 1987; Sigel, 1982; Wood, Bruner, & Ross, 1976). It is suggested here that the three processes thought to be important in adolescents' orientation to the future may already exist in interaction during which parents tutor their children to solve problems and carry out tasks.

Wood and his colleagues (Wood & Middleton, 1975; Wood et al., 1976) studied children's learning in a tutorial process in which "adults or experts help someone who is less adult or expert." The studies were carried out by observing how mothers interact with their 3- to 5-year-old children in a simple problem-solving situation (Wood & Middleton, 1975). Interestingly, the way Wood et al. (1976) characterize the tutoring process is similar to the model of orientation to the future presented in this review: first the tutor helps the child to keep the goal in his/her mind, then to work out the means of solving the task and, finally, to evaluate the behavior outcomes (see also McGillicuddy-De Lisi et al., 1987).

Parents' tutoring methods may also influence their children's later tendencies to set goals, use certain types of problem-solving and coping strategies and evaluate their own future opportunities. The demands parents make of their children during tutoring may be important in the development of permanent motivational tendencies, such as achievement motivation, the level of goal-setting, and persistence in the realization of goals. What is important is that the level of parental demand in a specific task fits their children's current interests and skills (Wood & Middleton, 1975). Demands that are too high may be followed by feelings of incompetence, whereas too low a level would not optimally increase achievement tendency. Parents' tutoring may also influence children's later tendencies to use specific types of problem-solving and coping strategies when trying to achieve their future-oriented goals. The properties of parental instructional strategies, such as effectiveness, flexibility in different situations, and the level of independence given to the child, can be expected to result in similar tendencies in his or her later planning activity. Finally, the feedback parents give their children about their behavior may

be expected to influence how children later evaluate their own behavior. For example, positive and encouraging feedback from parents is likely to increase the internality and optimism of children's beliefs. Later on, these beliefs play an important role in the development of self-concept and attributional styles. Parents have also been shown to be conscious about the influence of their tutoring on their children's planning skills (McGill-licuddy-De Lisi et al., 1987).

Research on how parent-child interaction influences adolescents' future orientation is laborious to carry out, because it requires longitudinal studies extending over a 10- to 15-year period. However, a few studies seem to suggest that early mother-infant interaction affects later tendencies related to future orientation. For example, a number of studies has shown that security in mother-infant interaction is predictive of the child's later exploration, autonomy, and problem solving (Ainsworth, 1979; Matas, Arend, & Sroufe, 1978; Sroufe, 1979). On the other hand, Kagan and Moss (1962) found that the extent to which mothers criticized their 1- to 3-year-old daughters correlated positively with the daughters' striving for achievement in adulthood.

The development of orientation to the future during adolescence. The family has been shown to be the most important context during adolescence, although peers and the school environment become increasingly important as young people mature (Jurkovic & Ulrici, 1985). In recent study of the relative importance of parents and peers in adolescent decision making, Wilks (1985) found that young people seek their parents' advice and opinions for longer-term, important, and difficult decisions, whereas friends' opinions and feelings are more important for short-term decisions in less important and less difficult areas.

Parents influence the future orientation of their adolescent children in at least three ways: first, by setting normative standards, they affect interests, values and goals. Adolescents have been shown to have values, beliefs, and goals that are very much like those of their parents (Conger, 1973; Coopersmith, Regan, & Dick, 1975). Thus, the relative importance of work, school, and leisure activities reflected in adolescents' goal-hierarchies can be expected to be learned in the family context. Second, parents serve as models for solving different developmental tasks. For example, the family provides information about how successful marriage is in solving the developmental task related to intimacy. Similarly, planning skills and coping strategies which adolescents apply when they face major developmental tasks may be learned in the family context. Nurmi (1987a) found preliminary evidence that the extent to which mothers planned their own lives correlated positively with the realization level of educational hopes expressed by their children. Third, attributional beliefs concerning the possibility of influencing different domains of life may be

learned in family interaction. Nurmi's (1987a) findings suggest that the internality of mothers' beliefs correlates positively with their adolescent children's internality concerning future education.

Peers also influence adolescents' future orientation in a variety of ways. As contemporaries are at the same stage of their life, they provide incentives for thinking about current life-tasks. The peer group also provides individuals with the opportunity of comparing one's own behavior with that of others. Finally, contemporaries influence adolescents' thinking about the future by peer-group pressure.

Cognitive Development and Adolescents' Orientation to the Future

It has been suggested that the evident increase in cognitive skills throughout the years of late childhood and adolescence (Keating, 1980) influences future orientation (e.g., Trommsdorff, 1986) in a variety of ways. The role of formal operations, in particular, has been emphasized. I will now outline how cognitive development influences adolescents' planning for the future.

First, acquiring formal operations during early adolescence enables a person to formulate hypotheses which are contrary to fact and mentally to explore many possible courses of action (Elkind, 1980). This capability is expected to help adolescents set future goals which they are not able to realize immediately and also to construct alternative action plans in their minds (Blasi & Hoeffel, 1974). According to Keating (1980), planning based on anticipatory knowledge, problem definition, and strategy selection seem to be used more frequently by adolescents than children and more frequently by older adolescents than younger ones. Second, acquiring formal operations also increases people's ability to conceptualize their own thoughts which is reflected in the increase of metacognition (Keating, 1980). These metacognitive skills are important, particularly in situations in which people have problems in achieving a specific goal and in which, therefore, the action strategies have to be changed. For example, Pea and Hawkins (1987) showed that 11- to 12-year-olds apply more meta-planning decisions compared with 8- to 9-year-olds (see also Kreitler & Kreitler, 1987).

Third, formal operations enable young people better to conceptualize the thoughts of other people. However, since adolescents cannot differentiate between concerns toward which others' thoughts are directed and their own concerns, this leads to egocentrism and the importance of "imaginary audience" (Elkind, 1967, 1980): adolescents believe that people in general are as obsessed by their behavior as they are themselves. This tendency to be very concerned what others think can be expected to increase the social influence of parents and peers on adolescents' thinking about the future. It has been suggested that egocentrism and the related

importance of an imaginary audience diminish by the age of 15 to 16 (Elkind, 1967).

However, studies have shown either low correlations or no relationship at all between cognitive skills and levels of planning for the future. Greene (1986), for example, found no correlation between a Piagetian-type of test measuring formal operations and coherence of future thinking. This may be due to the fact that concrete operational thinking typical of preadolescents may be perfectly adequate for the purpose of hypothesizing about the future and of making plans (Blasi & Hoeffel, 1974). On the other hand, Nurmi (1989b) reported positive but low correlations between intelligence measures and levels of planning, realization, and knowledge about the future. Similarly, a number of studies showed positive but low correlations between intelligence measures and effective planning (Kreitler & Kreitler, 1987; McGillicuddy-De Lisi et al. 1987; Pea & Hawkins, 1987).

In all, the framework introduced here differs in a number of ways from those applied earlier in this research field (reviews: Hoornaert, 1973; Rakowski, 1979; de Volder, 1979). First, future orientation here is put into the context of modern psychological concepts, such as goals, plans, schemata, and causal attributions. It was described in earlier research only in terms of this specific research field which was not associated with other fields of psychology (Hoornaert, 1973; de Volder, 1979). The application of modern psychological theory facilitates the comparison of research on future orientation with that in other pertinent fields, such as the development of planning skills, identity formation, and career decision making. Second, future orientation is described here as a process which consists of three substages, goal-setting, planning, and evaluation. Earlier research in the field typically described it in terms of intraindividual traits (e.g., Agarwal & Tripathi, 1980; Rappaport, Enrich, & Wilson, 1985); how these traits might be interrelated has not been further discussed (Hoornaert, 1973; de Volder, 1979). In contrast, the process approach applied here provides an analytical tool to promote the understanding of the relationships between the different substages involved through the analysis of their role in future-oriented behavior. Third, it is emphasized that life-span-related changes in normative expectations influence the development of adolescents' future orientation. It is suggested that there are changes not only in orientation to the future, but also in the context in which it develops, as adolescents grow older. Although the importance of expectations concerning life-span development has also been discussed earlier (Lessing, 1972; Trommsdorff, 1986), a systematic effort was made here, for the first time, to describe their influence on future orientation. Finally, the development of orientation to the future is characterized as a transactional process influenced by normative parental expectations, tutoring, role models, and emotional support during childhood and adoles-

cence. Although the role of social context has also been discussed earlier (Trommsdorff, 1983, 1986), no similar description of the developmental processes has been published.

The review of research on adolescents' future orientation which follows is based on this theoretical approach. First, however, I would like to say a few words about the methods applied in the field.

METHODS USED IN THE RESEARCH FIELD

Since orientation to the future is described here in terms of motivation, planning activity, and evaluation, only studies that provide information about these three processes are included in the overview of methods and the subsequent review of earlier studies. More specifically, only studies concerning the (1) *content* and *temporal extension* of future-oriented interests and goals, (2) related levels of *knowledge, planning, realization* and, finally, (3) *affects* and *causal attributions* concerning them are discussed. Other types of methods, such as abstract or projective measures, which have also been used in the research field, are not discussed here (reviews: Hoornaert, 1973; de Volder, 1979). The major reason for excluding such studies from the review is that they do not provide data about the processes involved in the model presented.

Future-oriented motives, interests, and goals have typically been studied by asking people what kind of hopes and fears (Nurmi, 1987b; Trommsdorff, Burger, & Fuchsle, 1982) or expectations (Mehta, Rohila, Sundberg, & Tyler, 1972) they have concerning the future. Then, the *content* of these hopes, fears, and expectations has been analyzed by classifying them according to the topics they concern. Although the content categories used vary from one study to another, the most frequently occurring ones include future occupation/profession, education/schooling, leisure activities, family/marriage, property, and self-actualization (e.g., Mehta et al., 1972; Trommsdorff et al., 1982).

People's interests also vary according to how far into the future they expect them to be realized. This dimension has been characterized as temporal extension, time-span, or protension of thinking about the future (Poole & Cooney, 1987). *Temporal extension* was investigated in the studies reviewed by asking participants to list their hopes or expectations concerning the future and then to estimate the time by which they expect these hopes and aims to be realized (e.g., Wallace & Rabin, 1960; Trommsdorff et al., 1982). Temporal extension is then scored either (a) by the *age of the subject* at the moment of the realization of the hope or (b) *in years* from the time of the study to the point of time the hope is expected to be realized.

Studies concerning planning activity are scarce. In a few, however, *levels of planning and realization* and *coherence* concerning the future are

measured. Verstraeten (1980), for example, asked students to produce goals and aims using Nuttin's (1985) Motivational Inventory. Then, the subjects were requested to write down how they were going to accomplish each goal. In addition, they were asked to write down whether they had done anything concrete to achieve the goal. On the basis of the answers, the levels of planning activity and realization were analyzed. Similarly, Nurmi (1987b, 1989b) analyzed the complexity of future-oriented plans, their level of realization, and the level of knowledge involved as they were verbally reported in the interview. Studies based on a self-rated level of planning have also been carried out (Cameron, Desai, Bahador, & Dremel, 1977-78).

According to the model presented, evaluation of the future is based on causal attributions and affects. *Causal attributions* concerning the future have usually been measured by asking subjects to rate the extent to which they believe they can exert control over the realization of their hopes and fears (Nurmi, 1987b; Trommsdorff et al., 1982). Other dimensions of causal attribution, e.g., their stability and globality (Weiner, 1985), have not featured in the studies.

On the other hand, *affects* concerning the future have been measured using a variety of methods. For example, optimism has been investigated by analyzing the content of written essays (Mönks, 1968). Affects have also been measured by asking people to rate the likelihood of the realization of their hopes, indicating optimism (Trommsdorff et al., 1982), or by asking them to evaluate their overall hopefulness concerning the future (Nurmi, 1987b). Furthermore, the relative proportion of future events rated as pleasant compared with those rated as unpleasant has been used as an index of optimism concerning the future (Poole & Cooney, 1987).

There are a number of problems with the methods, particularly considering the conceptualization introduced here. First, they yield relatively basic information about orientation to the future. For example, in none of the studies reviewed was future orientation investigated as a multistage process. Neither has the hierarchical structure of future-oriented interests and life-goals been examined. Second, the methods used vary to a great extent from one study to another, even if only those which provide data about the major concepts of the model introduced here are considered. This lack of standardized methodology makes it difficult to compare the results of various studies. Third, studies on future orientation apply questionnaire and interview methods. However, the extent to which these measures correlate with people's actual behavior in situations which involve future-oriented planning and decision making has not been investigated. Finally, there is also a wide variety of ways of measuring contextual factors. For example, measures of family relationships vary from one study to another.

RESEARCH ON ADOLESCENTS' FUTURE ORIENTATION AND PLANNING

Using the theoretical framework and classification of the methods presented as a basis, research on adolescents' orientation to the future and the factors determining its development will now be summarized. First, the interest adolescents have in the future and how far their thinking extends are analyzed. Then, the development of future-oriented motivation, planning activity, and evaluation is reviewed. Next, the role of developmental context is analyzed by examining the effects of sex, socio-economic status, and family interaction on adolescents' thinking about the future. The samples, methods, and major results of the studies are summarized in Table 1. Finally, cross-cultural differences in adolescents' future orientation are reviewed.

What Interests in and Concerns about the Future Do Adolescents Have?

Goals and expectations. All the studies concerning the content of hopes, aims, and expectations show that adolescents are most interested in their future occupation and education. Mönks (1968) reported results among Dutch adolescents showing that the most frequent statements were those referring to school and vocation. Similar results were found in a number of studies using different types of method (Gillies, Elmwood, & Hawtin, 1985; Meissner, 1961; Nurmi, 1987b, 1989b; Poole & Cooney, 1987; Seginer, 1988a, 1988b; von Wright & Rauste-von Wright, 1977). Moreover, in contrast to many other contents of thinking about the future, no major cross-cultural differences have been found in interests concerning future occupation and education (Mehta et al., 1972; Solantaus, 1987; Sundberg, Poole, & Tyler, 1983). The next most common topics that adolescents are interested in are future family and marriage, leisure activities, and the material aspects of life (Gillies et al., 1985; Gillispie & Allport, 1955; Mönks, 1968; Nurmi, 1987b, 1989b; Seginer, 1988a, 1988b). However, the results vary to a great extent according to a number of variables such as age, gender, and culture (Gillispie & Allport, 1955; Mehta et al., 1972; Solantaus, 1987; Sundberg et al., 1983). This will be discussed in detail later.

The results suggest that adolescents' goals and interests concern the major developmental tasks (Havighurst, 1948/1974) of late adolescence and early adulthood, such as future education, occupation, family, and the material aspects of their future life. Interestingly, when Dreher and Oerter (1986) asked adolescents directly about their thoughts on developmental tasks, they found that young people, at the ages of 15 and 16, were aware of them and also consciously active in coping with them. As

a negation of interests, adolescents are also concerned about the occurrence of events they feel to be threatening. Next, I will examine what studies show about these concerns.

Fears and concerns. Although the content of adolescents' fears and worries varies according to a number of factors, such as age, culture (Solantaus, 1987), and methods used (Nurmi, 1988a), adolescents seem to be concerned about three major topics. First, they have been shown to express a number of worries and concerns related to normative life-tasks, such as getting a job and a good education, and starting a family. For example, the threat of unemployment (Gillies et al.; Goldberg et al., 1985; Solantaus, 1987), school failure (Payne, 1988), and divorce in the future (Rauste-von Wright, 1987) have been shown to be reflected in their thinking. Second, adolescents seem to be concerned about the non-normative events related to their parents and present family. For example, American and Caribbean adolescents have been reported to be concerned about the health of their parents, while Soviet children were more concerned about the possibility of their parents' divorce (Chivian et al., 1985; Goldenring & Doctor, 1984; Payne, 1988). The third class of adolescents' worries concerns societal events, especially the threat of nuclear war, a topic that has recently been the subject of a great deal of research (Goldberg et al., 1985; Goldenring & Doctor, 1984; Nurmi, 1988a; Solantaus, 1987; Solantaus, Rimpelä, & Taipale, 1984; for a review, see Solantaus, Rimpelä, & Rahkonen, 1985).

If adolescents' major concerns and worries are compared with their hopes and aims, the results seem to show a polarization of thinking (see also Poole & Cooney, 1987): adolescents are positively interested in topics related to their personal future, such as future occupation, education, and family. On the other hand, many are concerned about global and societal threats, such as nuclear war and unemployment. From this polarization, one interesting issue arises: how do global threats influence adolescents' thinking about their own future? Interestingly, however, when these relationships have been studied, it has been shown that experience of the threat of war does not decrease adolescents' thinking about and planning for their personal future life (Goldberg et al., 1985; Nurmi, 1988a, 1989b). On the contrary, adolescents who experience the threat of war have been found to be more interested in their future family and occupation than other youths (Nurmi, 1988a). These results indicate that, although adolescents are concerned about the global threats which they feel powerless to influence, they are able simultaneously to plan their own future.

How Far into the Future Does Adolescents' Thinking Extend?

One of the most frequently studied dimensions of adolescents' future

TABLE I
SUMMARY OF STUDIES ON ADOLESCENTS' ORIENTATION TO THE FUTURE

Study	Sample	Age	Method	Independent variables	Dependent variables	Main results
Bentley (1983)	98 Scottish, 106 Swazi	12-25	Questions concerning the future, questionnaire	Sex, culture	Extension (age), content	Boys extended further into the future than girls.
Cameron, Desai, Bahador, & Dremel (1977-78)	1031 Americans	9-65	Expected future events, interview	Age, social class	Planning	14- to 17-year-olds planned their future less compared with 18- to 25-year-olds. Subjects from a higher social class claimed that they plan their future more than the lower class subjects. Older adolescents and males projected further into the future.
Cartron-Guerin & Levy (1980)	80 French	12-15	Questionnaire on future family and career	Age, sex	Content, extension	Older adolescents and females gave greater importance to their future family. Lower class children have expectations related to playing, moving, travelling, whereas higher class children have more expectations related to job, marriage/children, and home.
Freire, Gorman, & Wessman (1980)	54 Americans	7-11	Future expectancies, interview	Social class	Content	Among future hopes employment, wealth, and a happy marriage were prominent.
Gillies, Elmwood, & Hawtin (1985)	1797 English	11-16	Hopes & fears questionnaire	Age, sex	Content	

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Goldberg et al. (1985)	2000 Americans	13-19	Fears & hopes questionnaire	Age, sex	Content	More girls than boys hoped for a happy marriage, and more boys than girls desired wealth. The most common fear was unemployment. Its proportion also increased with age. Among future fears, nuclear war and unemployment were most prominent. Worries about nuclear war decreased with age, while worries about unemployment increased with age. Among future worries, the death of parents and nuclear war were most prominent.
Goldenring & Doctor (1984)	1000 Americans	11-19	Future worries check list		Content	Older students extended more into the distant future (by age). No age differences in coherence.
Greene (1986)	60 Caucasians in the U.S.	15-19	Future events questionnaire	Age, sex	Extension (age), coherence.	Older adolescents expressed longer extension (in age) compared with younger ones.
Klineberg (1967)	90 French	10-17	Future events interview	Age, delinquents vs. non-delinquents	Extension (age), coherence	Older adolescents' future orientation was more consistent compared with that of younger ones. Maladjusted children extend further into the future compared with normal children, while normal youths extend further into the future than maladjusted ones.

TABLE 1—Continued

Study	Sample	Age	Method	Independent variables	Dependent variables	Main results
Lamm, Schmidt, & Trommsdorff (1976)	100 West Germans	14-16	Hopes & fears questionnaire	Sex, social class	Content, extension (years), internality	Girls voiced more hopes and fears in the private sphere, including family. Boys listed a greater amount of occupational hopes and fears. Girls were more external in their future thinking compared with boys. Middle-class adolescents voiced more hopes relating to public life and have more extended future orientation than lower-class adolescents.
Lessing (1972)	168 Americans	9-15 girls	Future events questionnaire	Age	Extension (years)	Younger girls have more extended future orientation than older girls.
Levine, Spivack, Fuschillo, & Tavernier (1959)	47 Americans	11-19 delinquent boys	Future events questionnaire	Age	Extension (age)	Older boys placed events farther into the future (by age) than younger boys.
Meissner (1961)	1278 Americans	13-18 boys	Future worries questionnaire	Age	Content	General areas of worry were school, sex, popularities, immorality, and vocational future. School topics decreased with age, whereas worries concerning future vocation increased.

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Mönks (1968)	1424 Dutch	14-21	Future outlook essay	Sex	Content	Adolescents were most interested in school, vocation, and future family and home.
Nurmi (1987b)	148 Finnish	10-19	Hopes and fears interview	Age, sex, social class, family atmosphere	Content, extension (years), planning, knowledge	<p>Boys were more interested in school and vocation, whereas girls were more concerned about future family and marriage. Boys also have clearer concepts about political and social procedures. Hopes relating to occupation, education, and family increased with age.</p> <p>Extension of future thinking decreased, whereas the levels of knowledge and planning increased with age.</p> <p>Girls had more hopes concerning future family but did not have fewer hopes concerning vocation or education.</p> <p>Adolescents from the higher social classes projected further into the future in the vocational domain compared with lower-class adolescents.</p> <p>A negative climate in the family is negatively related to future planning among 11-year-olds but positively related to future planning among 18-year-olds.</p>

TABLE 1—Continued

Study	Sample	Age	Method	Independent variables	Dependent variables	Main results
Nurmi (1989a)	218 Finnish	10-15 (longitud. & cross-sect.)	Hopes and fears interview	Age, sex, time of study	Content, extension, planning, internality, affect	Adolescents were most interested in future education, occupation, family, and property. Hopes concerning education increased, whereas hopes concerning leisure activities decreased with age. Both 11- and 15-year-olds extended in their thinking to about the age of 20. Levels of planning, realization, and knowledge increased with age. Internality and optimism concerning the future increased with age, especially among boys. Higher class adolescents extended further into the future compared with lower class subjects. Adolescents most frequently mentioned future work, education, and family. Adolescents from high social backgrounds were more interested in education and travelling but less
O'Rand & Ellis (1974)	80 Americans	17-19 boys	Future events questionnaire	Social class	Extension (age)	
Poole & Cooney (1987)	440 Australians, 162 Singaporeans	14-15	Future events questionnaire	Culture, sex, social class	Content, extension (years), affects	

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Pulkkinen (1984)	154 Finnish	20	Longitudinal study (8-20)	Interview	Sex, family, atmosphere	Content, planning, realism	<p>interested in topics related to work than those from lower social class backgrounds.</p> <p>Females had shorter extension than males.</p> <p>Girls were more oriented toward future family and more worried about occupation, whereas boys were more oriented toward financial matters and more worried about the possibility of war.</p> <p>Good relationships with parents were related to clarity of plans and optimism.</p>
Seginer (1988b)	226 Israeli Jews	High-school seniors	High-school seniors	Hopes & fears questionnaire	Sex, urban vs. kibbutz	Content, specificity	<p>Adolescents were most interested in or concerned about entering the army, future education, work, family, and marriage.</p> <p>Urban adolescents have a more detailed and elaborate image of military service than kibbutz adolescents.</p>
Solantaus, Rimpelä, & Rahkonen (1985)	1757 Finnish	12-18	12-18	Hopes & fears questionnaire	Age	Content	<p>Hopes concerning work and employment were most frequent. The top worry was fear of war.</p> <p>Fear of war and hopes for peace decline with age.</p>

TABLE 1—Continued

Study	Sample	Age	Method	Independent variables	Dependent variables	Main results
Solantaus (1987)	600 Austrians, 596 British, 665 Finnish	11-15	Hopes & fears questionnaire	Culture, age, sex	Content	Hopes concerning work and employment were most frequent for all national groups. Hopes and worries concerning work and employment increased with age. Hopes for a future family increased with age among Finns. In all countries, boys expressed more hopes about the material aspects of life and fewer worries about their future family compared with girls. Higher-class subjects had more extended future orientation than lower-class subjects. Females were more concerned about family-related topics.
Trommsdorff & Lamm (1975)	200 girls and boys, 200 males and females	14-16 35-45	Hopes & fears questionnaire	Sex, social class, adolescents vs. adults	Content, extension (years)	15-year-olds structured their hopes related to their future family more precisely than 11- and 13-year-olds. 15-year-olds expected to have less personal influence on the future than 11-year-olds.
Trommsdorff et al. (1978)	48 West Germans	11-15	Hopes & fears questionnaire	Age, parental support	Coherence, externality	

Adolescents experiencing little parental support were less optimistic about their future and also more external in their future thinking. They also showed less extension and differentiation with regard to their economic and occupational future.

Girls' hopes related to family were more structured than boys', whereas boys' hopes related to material domain were more structured than girls'.

Older subjects have more hopes and fears related to occupation and personal growth.

Boys have more extended future orientation compared with girls, especially in older age groups.

Low-status subjects voiced more hopes and fears related to occupational domain.

Low-status subjects after participating in working life were more internal than high-status subjects.

Lower-class adolescents planned their vocational and educational domains less than higher-class adolescents.

Trommsdorff,
Lamm, &
Schmidt (1979)

48 West
Germans

Longitudinal
study
(14-16 and
16-18)

Hopes & fears
questionnaire

Age, school
form

Content,
extension
(years),
externality

Adolescents experiencing little parental support were less optimistic about their future and also more external in their future thinking. They also showed less extension and differentiation with regard to their economic and occupational future.

Girls' hopes related to family were more structured than boys', whereas boys' hopes related to material domain were more structured than girls'.

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Low-status subjects voiced more hopes and fears related to occupational domain.

Low-status subjects after participating in working life were more internal than high-status subjects.

Lower-class adolescents planned their vocational and educational domains less than higher-class adolescents.

Tyszkowa (1980)

520 Polish

11-15

Expected life
situation at
age 30,
questionnaire

Social class

Planning

TABLE 1—Continued

Study	Sample	Age	Method	Independent variables	Dependent variables	Main results
Verstraeten (1980)	113 Belgians	15-17	Goals & desires questionnaire	Age, sex	Extension (age), realization	Older subjects showed more extended future orientation (by age) than younger subjects. They also show more realization of their goals and lower subjective probability evaluations than younger subjects. More girls than boys have wants concerning their adulthood.
Vincent (1965)	48 Americans	14-15	Expected life events interview	Social class	Extension (years)	Girls also have more elaborated aspirations in the educational domain compared with boys. Children from a high social class looked further into the future compared with low-class children.
Webb & Myers (1974)	160 Americans	9-19	Expected life events questionnaire	Age	Extension (years)	A U-shape relationship between age and extension: the youngest age group has the most extended future orientation, whereas 15-year-olds have the shortest and 18-year-olds the next shortest extension.
von Wright & Rauste-von Wright (1977)	209 Finnish	17-18	Questions concerning the future, questionnaire	Sex	Content, extension (age)	Boys were interested in more distant events than girls. Girls were more interested in studies and vocation compared with boys.

orientation is how far into the future their goals and expectations extend. The results show that young people, whatever their age and cultural background, extend in their thinking to the end of the second and the beginning of the third decade of life. For example, Sundberg et al. (1983) found that average orientation among American, Indian, and Australian adolescents ranged from 18.3 years of age for Indian girls to 20.4 years of age for Australian girls. Similar results were found by Nurmi (1987b) for Finnish adolescents and by Poole and Cooney (1987) for Australian and Singaporean adolescents. These results are consistent with findings concerning the content of interests and goals, because the developmental tasks they typically concern, such as future occupation, education, and family, are expected to be actualized just at the end of the second and the beginning of the third decade of life.

Nurmi (1987a, 1989b) recently investigated the role of anticipated life events in adolescents' orientation to the future by comparing the mean extensions of future goals according to content. The results showed that adolescents anticipated that their hopes for their future education would be actualized, on average, at the age of 18.1, for leisure activities at the age of 18.5, for occupation/profession at the age of 22.5, for a future family at the age of 25.0, and, finally, for property at the age of 25.2 (Nurmi, 1989b). These results suggest that adolescents' future-oriented goals and interests, and also their time-span, reflect "the cultural prototype" of anticipated life-span development: Young people expect to finish their education first, then to get a job, third to get married, and finally, to build up a material basis for their later life. Interestingly, only few 11- to 15-year-old adolescents expressed hopes which they expected to be realized after the age of 30 (Nurmi, 1989b).

The Development of Future-Oriented Motivation, Planning Activity, and Evaluation

The developmental changes in orientation to the future will now be analyzed separately for motivation, planning activity, and evaluation. Since development measured as age is a complex variable consisting of a whole range of influencing factors, such as physiological maturation, development of cognitive skills, and age-related changes in social context, the mechanisms responsible for the age differences will also be discussed.

Interests, goals, and concerns. Studies based on age-group comparisons show that adolescents become more interested in and concerned about their future occupation (Gillies et al., 1985; Goldberg et al., 1985; Meissner, 1961; Nurmi, 1987b; Solantaus, 1987; Trommsdorff, Lamm, & Schmidt, 1979), education (Nurmi, 1987b) and family (Cartron-Guerin & Levy, 1982; Nurmi, 1987b) with age. Nurmi (1989b) recently found similar results using longitudinal data. He also reported considerable stability of

interest concerning future education and occupation over a 4-year period during early adolescence. On the other hand, Nurmi's results show that adolescents become less interested in leisure activities as they grow older.

In sum, it seems that, as adolescents grow older, they become increasingly interested in developmental tasks concerning future education, occupation, and family. Moreover, young people seem to become interested in the life-tasks of late adolescence (e.g., education) earlier than they do in the tasks of early adulthood (e.g., future occupation and family) (Nurmi, 1989a). However, increasing interest in occupation seems to arise during late childhood: Oppenheimer and Van der Wilk (1987) found that changes in interest from imaginary heroes referring to power and fame to more realistic orientation, including professional goals, take place between the ages of 8 and 11.

Extension of interests. Results concerning development before adolescence (Kreitler & Kreitler, 1987) show that, at the beginning of the second decade of life, children are both interested in and able to think about events touching on the far future. I now intend to investigate how extension of thinking about the future develops after this period, during adolescence. However, in order to find a consistent pattern of results and unlike previous reviews (e.g., de Volder, 1979), the studies will be grouped according to how the extensions were measured.

The first group of studies, measuring extension by *age of participants*, shows that older adolescents' thinking extends further into their life span compared with that of younger adolescents (Greene, 1986; Klineberg, 1967; Levine, Spivack, Fuschillo, & Tavernier, 1959; Verstraeten, 1980). In contrast, when extension is measured by *years from the point of study*, the results show that younger adolescents extend further into the future compared with relatively older adolescents (Lessing, 1972; Webb & Mayers, 1974). Nurmi (1987b) even found both tendencies in one study when he investigated orientation to the future among adolescents aged 11 to 18. These results indicate that extension measured by years is longer for younger than for older adolescents and decreases with age as the realization of the developmental tasks or milestone events (Lessing, 1972) approach in time. However, there seems to be a tendency for older adolescents to orient, at least to some extent, toward more distant stages of their life span compared with younger adolescents.

Planning for the future. Recently, a growing number of studies have been carried out on the development of children's planning skills (see Friedman et al., 1987). These studies show, not surprisingly, that planning efficiency increases with age (Kreitler & Kreitler, 1987; Pea & Hawkins, 1987) and that, at least by the age of 10 to 11, children have acquired basic planning skills (Oppenheimer, 1987). However, it seems that planning skills continue to develop after this age up to the early 20s, as shown by

Dreher and Oerter (1987). I will now proceed to examine whether this development is also characteristic of planning for the future.

Most results show that the levels of planning, realization, and cognitive structuring concerning the future increase as adolescents grow older. Verstraeten (1980) studied verbally reported plans among 15- to 17-year-olds and found that realism in thinking about the future measured against the levels of planning and realization of future goals increased with age. Similarly, using both cross-sectional (Nurmi, 1987b) and longitudinal data (Nurmi, 1989b), Nurmi found that 11- to 18-year-old adolescents' levels of knowledge, planning, and realization concerning future goals increased with age. In addition, Cameron et al. (1977-78) found that 14- to 17-year-olds assessed the level of their future planning lower than 18- to 25-year-olds did. Nurmi's (1989b) results, which were based on analysis of the complexity of future-oriented plans in terms of the means-end relationship used, seem to suggest that the development of plans and the level of their realization are more quantitative than qualitative by nature.

Results concerning coherence of thinking about the future are more contradictory: While Klineberg (1967), in a study of 10- to 17-year-old adolescents, found that coherence of future orientation increased with age, Greene (1986) found no age effect among adolescents aged 15 to 19 using a similar coherence measure. Coherence was measured as consistency between the arrangement of future events according to the time of their realization in two tasks, and it is possible that it taps a different type of processing than the planning measures reviewed above.

The fact that levels of planning, realization, and knowledge concerning the future increase with age may be due either to the development of cognitive skills or to contextual changes in the planning situation during adolescence. However, when the influence of cognitive skills on planning for the future has been studied, the results show either low correlations (Nurmi, 1989b) or no relationships at all (Greene, 1986) between the levels of cognitive skills and planning activity. Another possible reason why levels of planning and realization increase with age concerns the changes in the planning context (Cantor & Kihlstrom, 1987). In this case, planning for the future may become more meaningful and also more encouraged by parents and teachers as adolescents grow older. For example, adolescents are usually encouraged to plan their education just before the end of secondary school at the age of 14 to 15. Similar important periods of contextual changes in life-planning may be identified for occupation and future family as well. However, research on the extent to which the development of life-planning is determined by contextual changes at different stages of adolescence has not been carried out.

Causal attributions and affects concerning the future. Only a few studies concerning the development of causal attributions and affects related

to the future have been published. Nurmi's (1989b) results showed that preadolescents' beliefs about the future become more internal with age. He further suggested that the increase in internality may reflect adolescents' growing opportunities for controlling their life. In contrast to Nurmi's results, however, Trommsdorff, Burger, Fuchsle, and Lamm (1978) reported decreasing internality during early adolescence. Nurmi (1989b) also reported sex differences in the development of optimism. His results showed that the increase in optimism applied more to boys, whereas girls showed a tendency to become more pessimistic with age. These results are similar to those reviewed by Petersen (1988) showing that girls, in contrast to boys, appear to display increased depressive affect over the adolescent period.

How Does Social Context Influence Adolescents' Future-Oriented Motivation, Planning, and Evaluation?

In interaction with their parents, peers, and teachers, children learn normative expectations concerning life-span development, related role models, and behavioral standards. However, normative life-span development and related cultural knowledge differ according to a number of factors, such as sex, socioeconomic status, and the subculture in which the children are living (Dannefer, 1984). In addition, the skills, coping strategies, and attributional styles, which children apply when coping with major life-tasks and which they learn in their home are also likely to vary along similar lines. To investigate how social context influences future-oriented motivation, planning, and evaluation, I will now turn to studies concerning the effects of sex, socioeconomic status, and family interaction on adolescents' thinking about the future.

Sex roles. Culture-bound expectations concerning life-span development vary to large extent according to sex. Traditionally, males participate more actively in education and working life, whereas females are more involved in family and domestic activities. Not surprisingly, studies on sex differences in adolescents' orientation to the future show that boys tend to be more interested in the material aspects of life, whereas girls are more oriented toward their future family. Gillispie and Allport (1955) found in their extensive cross-cultural study that more girls than boys hoped for a happy marriage and more boys than girls desired wealth. Similar results have been found in a number of studies (Cartron-Guerin & Levy, 1982; Gillies et al., 1985; Pulkkinen, 1984; Solantaus, 1987). Furthermore, Lueptow (1984) found that male and female responses to the life goal items were stereotypic. Girls value religion, making contribution to society, and family, while boys stress showing others, luxury, status, and success. However, there was no sex difference in the importance of occupation as a life goal. Oppenheimer and van der Wilk (1987) reported

results showing a typical sex-related pattern in children's interests as early as the age of 5, suggesting that sex-typical thinking develops in early childhood. Interestingly, Trommsdorff et al. (1978) found that girls' hopes for a future family were more structured than boys', while boys' hopes in material domains were more structured than those of girls. This results suggests that sex roles influence not only adolescents' interests but also their knowledge about these topics.

Results concerning the influence of sex on how far into the future adolescents' thinking extends are contradictory. A number of studies show that boys extend further into the future compared with girls (Bentley, 1983; Cartron-Guerin & Levy, 1982; Poole & Cooney, 1987; Trommsdorff et al., 1979; von Wright & Rauste-von Wright, 1977), whereas some other studies (Greene, 1986; Nurmi, 1987b; Verstraeten, 1980) found no sex differences in extension. Results showing that boys' thinking extends further into the future compared with girls' thinking may be due to the sex differences in the content of adolescents' interests, as was shown before: girls' shorter time span may be due to the fact that they have more female-type interests, such as getting married and having a lower level of education, where the realization time is objectively situated in the more immediate future compared with the contents which interest the boys, i.e., occupation and the material aspects of life. Furthermore, Lamm, Schmidt, and Trommsdorff (1976) found that, although girls' future orientation was directed toward the attainment of occupational goals, their thinking concerned goals that extended rather less far into the future compared with boys.

In all, boys and girls were shown to differ in particular according to the content of their interests and related temporal extension. This may be due to the differences in normative life-span development between males and females. However, some cross-cultural variation in the influence of sex on adolescents' thinking about the future has been found. This will be discussed in detail later.

Socioeconomic status. The few studies carried out on the influence of socioeconomic status on the *content* of adolescents' interests show that future working life is more emphasized in the thinking of lower-class adolescents, whereas middle-class adolescents tend to be more interested in education, career, and leisure activities (Poole & Cooney, 1987; Trommsdorff et al., 1979). Moreover, Lamm et al. (1976) found that middle-class adolescents voiced more hopes relating to public life than personal life compared with lower-class adolescents.

A number of studies also show that adolescents with a relatively high socioeconomic status extend further into the future compared with young people from a low socioeconomic background (Mehta et al., 1972; Nurmi, 1987b; O'Rand & Ellis, 1974; Trommsdorff & Lamm, 1975; Vincent,

1965). Nurmi (1987b) found this to be true especially for hopes concerning vocational interests. One possible explanation for these results is that, on average, in the higher social classes, the principal developmental tasks are anticipated to be actualized at a later stage of life than in the lower classes (Nurmi, 1987b). Boocock (1978) reported results showing that American adolescents from high status homes make major life-course transitions at a later age than their low-status peers. As stated by Trommsdorff (1983, 1986), the shorter extension of lower-class adolescents reflects the realistic appraisal of their expected life-span rather than individual deficiencies in thinking about the future. Most studies on the level of *planning for the future* show that adolescents with a high socioeconomic status tend to plan their future more than youths with a relatively low socioeconomic position (Cameron et al., 1977-78; Trommsdorff et al., 1978; Tyszkowa, 1980).

In all, the results suggest that adolescents' socioeconomic status influences their interests and related temporal extension, reflecting differences in anticipated life-span development.

Family context. Parent-child interaction was expected to play an important part in the development of adolescents' orientation to the future: first, by setting normative standards, parents influence the development of their children's interests, values, and goals. Second, parents may serve as models for solving different developmental tasks. Third, parental support may provide a basis for adolescents' internal and optimistic attitudes toward the future. For example, Dreher and Oerter (1986) found that adolescents frequently mentioned support from their parents as helpful when they were asked about the factors influencing their ability to cope with developmental tasks.

Results in the field show that family context influences adolescents' future-oriented interests and goals in a variety of ways: for example, a low level of parental control seems to encourage them to become interested in major developmental tasks, such as future education (Nurmi, 1989d), at a relatively early age. This may be due to the fact that a relatively low level of parental control increases preadolescents' independence, which is further reflected in their earlier involvement in the planning of their future education and career compared with their contemporaries. Moreover, parents' educational goals have been shown to be associated with those of adolescents (Kandel & Lesser, 1969). The family also seems to provide a model for how adolescents plan to solve different developmental tasks, in particular intimacy: A few studies seem to show that positive family interaction (Nurmi, 1989d) and the marital happiness of parents (Niemi, 1988) encourage adolescents actively to plan for their own future marriage and family. Parental support has been shown to increase adolescents' level of planning activity in occupational and educational domains

(Nurmi, 1987b; Trommsdorff et al., 1978), and to increase optimism and internality concerning the future (Nurmi, 1989d; Pulkkinen, 1984; Trommsdorff et al., 1978). In all, these results seem to provide some evidence for the developmental model presented earlier.

Recently, Nurmi (1988b, 1989d) also reported developmental changes in the effects of parent-child interaction on adolescents' thinking about the future. His research revealed that parental control plays an important role at the age of 11, decreasing the level of optimism, whereas the level of family discussion is important at the age of 15, increasing the level of optimism. These results fit the hypothesis proposed by White, Speisman, and Costos (1983), according to which the first stage of the parent-adolescent relationship stresses the autonomy of adolescents as they seek to establish separateness of self from parents, whereas active and mutual interaction becomes more important during later adolescence. Nurmi (1987b) also found, in another study, that a positive atmosphere in the family increased the level of adolescents' future planning at the age of 11, whereas it decreased it at the age of 18. In all, these results suggest that the role of different dimensions of family interaction in the development of orientation to the future changes as a function of the adolescent's age.

However, the relationship between parental behavior and children's orientation to the future is more complex. Adolescent's thinking about and planning for the future may influence parental behavior as well. Those who are interested in major developmental tasks and who show high levels of planning skills are likely to be controlled less and allowed more independence than their contemporaries. Interestingly, when Seginer (1983) summarized research showing that high parental expectations were associated with children's high educational aspirations and academic performance, she also found that parents' expectations are influenced by their children's academic behavior. Consequently, family interaction should be described as a developing system rather than by simple causal links.

The review so far shows that, even though the majority of adolescents are interested in the major developmental tasks of their own age, their future-oriented goals, plans, and related causal attributions and affects vary to a great extent according to their age, sex, socioeconomic status, and family context. Looking at the relative influence of these factors provides some support for the model emphasizing the role of cultural and social context in the development of adolescents' future orientation. If the influence of several factors were to be considered simultaneously, it would be possible to categorize subgroups with considerable differences in their future orientation. However, such developmental differences have not been described so far. A need for future research in this area is evident.

Cross-Cultural Differences in Adolescents' Orientation to the Future

Not surprisingly, a number of cross-cultural differences have been found concerning adolescents' future orientation, reflecting the fact that young people's anticipated life-span development and their life context vary to a great extent across different cultures. Since only the major results are reviewed here, a summary of the samples and methods used, and the results of cross-cultural studies on adolescents' future orientation are presented in Table 2.

Adolescents' interests. In all, the studies show unexpected similarity in adolescents' interests across cultures: they all seem to be most interested in two main domains of their future life, work, and education (Gillispie & Allport, 1955; Seginer, 1988a; Solantaus, 1987; Sundberg et al., 1983). Since education and work play a crucial role in expected life-span development in all the cultures involved in the research, these results are not so surprising. All the adolescents participating in the studies reviewed were at school and this may partly explain the cross-cultural similarities. Cultural differences may have emerged if adolescents, in particular from developing countries, who do not attend school, had been included.

In contrast, a number of studies show that adolescents from Anglo-American cultures more frequently express interest in their personal happiness, future family, and leisure activities, whereas young people from traditional societies, such as India, are more oriented to their parents' family, the health and death of others, the marriage of others, and societal topics (Gillispie & Allport, 1955; Sundberg et al., 1983). A different pattern emerges, however, if Anglo-American cultures are compared with rapidly urbanizing countries, such as Mexico and Singapore. Tallman, Marotz-Baden, and Pindas (1983), for example, found that Mexican adolescents placed greater value on material advancement in the future and emphasized saving and retraining to a greater extent than marriage and children compared with American youths. On the other hand, American adolescents emphasized family-oriented activities more than Mexican adolescents. Poole and Cooney (1987) found similar types of differences between Singaporean adolescents and Australian youths, as did Seginer (1988a) between Jewish adolescents living in a modern society and Arab adolescents growing up under transition from a rural to a modern way of life. Thus, even though education and career are dominant topics in adolescents' future outlook in all cultures, they have an especially important role for youths living in rapidly urbanizing societies such as Mexico and Singapore and for Israeli Arabs. One possible reason for this is that formal education in these societies provides better opportunities for real social success than in postindustrial societies and more traditional types of culture. However, in order better to understand these differences, more

detailed analysis of the cultures must be included in cross-cultural comparisons.

Solantaus (1987) also found cross-cultural differences in adolescents' thinking about the future in comparisons of adolescents from three Western types of society. The results show that Austrian adolescents, compared with British and Finnish adolescents, more frequently express hopes and worries concerning school and education, nuclear family, and human relations. On the other hand, British youths' hopes and worries exceed others' thinking in work and employment, material aspects of life and future family, while Finnish adolescents worry less than others about school and studies and more about war and other global affairs. These results seem to reflect a number of specific features of the societies compared. For example, societal problems threatening adolescents' future life, such as the high rate of unemployment in Great Britain, seem to be reflected in adolescents' orientation to the future. On the other hand, Solantaus et al. (1985) proposed that the high frequency of the fear of war among Finnish adolescents is due to the general antinuclear attitude in Finland and to the mass media, which often broadcasts programs on the subject.

Overall, these cross-cultural differences in interests seemed to reflect the differences in the typical developmental tasks of each culture as well as current societal features, e.g., level of unemployment. However, since cross-cultural studies have not involved measures of planning for the future or causal attributions and affects, we do not know the extent to which these aspects of adolescents' thinking vary.

Cross-cultural differences in sex roles. A number of studies show that sex differences in adolescents' orientation to the future are more evident in the traditional societies compared with more urbanized ones. For example, in a summary of their study, Sundberg et al. (1983) stated that Indian adolescents showed the largest sex differences compared with American or Australian adolescents. Similar results comparing American and Indian adolescents were found by Heckel and Rajagopal (1975). Furthermore, Bentley (1983) found that Swazi girls were less interested in their future occupation and also had less extended future orientation compared with Swazi boys and Scottish adolescents.

The influence of sex also seems to vary across Western cultures. Solantaus (1987) found, for example, that girls and boys in Finland did not differ in their hopes and worries concerning work and employment, as girls and boys in Austria and Great Britain did. A comparison of the results of investigations by Mönks (1968) and Lamm et al. (1976) and by Nurmi (1987b, 1989b) reveals a similar pattern. The major reason for these cross-cultural differences may be the fact that the high rate of urbanization in Finland during the last two decades, one of the highest in

TABLE 2
SUMMARY OF CROSS-CULTURAL STUDIES ON ADOLESCENTS' ORIENTATION TO THE FUTURE

Study	Sample cultures	Age	Method	Dependent variable	Results
Barton (1985)	409 British, 765 Finnish	12-15	Fears & hopes questionnaire	Content	British adolescents had more hopes concerning future occupation and more fears concerning unemployment, whereas Finnish youths were more concerned about the issue of peace and war.
Bentley (1983)	98 Scottish, 106 Swazi	12-25	Questions concerning the future, questionnaire	Content, extension	Swazi girls were less interested in their future occupation and they showed less extended future orientation compared with other groups.
Chivian et al. (1985)	913 Americans, 293 Soviets	12-13	Future concerns questionnaire	Content	Scottish adolescents were less interested in their future family but more in their personal happiness compared with Swazi adolescents.
Gillispie & Allport (1955)	United States, New Zealand, South Africa, (White, Bantus, Indians) Egypt, Mexico, France, Italy, Germany, Israel, Japan	University students	Future autobiography	Content, optimism	For Americans the item of greatest concern was the death of parents, whereas for Soviet adolescents it was nuclear war and other global issues. Women were more family oriented than men, whereas men were more concerned with economic values. American students were more interested in their own future family and less in their parental family compared with youths from other countries. American adolescents oriented typically toward personal happiness and leisure activities. Students from Anglo-American cultures were also optimistic

<p>and internal in their future thinking compared with other groups of students.</p>			
<p>Egyptians, Mexicans, Africans, and Bantu students were relatively nationalistic and concerned about social matters.</p>			
<p>French, German, and Italian adolescents were pessimistic and interested in building a consistent personal character. The outstanding feature of the Japanese compared with other students was the stressing of virtues of duty and moral convention. Academic goals for Chinese students were related to acquiring personal knowledge, while for Americans to obtaining professional qualifications.</p>	<p>Academic goals questionnaire</p>	<p>17-22</p>	<p>197 American, 147 Chinese (Taiwan)</p>
<p>Chinese students said more often than Americans that their parents were most influential in deciding their major field of study.</p>		<p>About 20</p>	
<p>American students were more realistic in their goal setting.</p>	<p>Level of goals</p>	<p>Goal setting in simple task</p>	<p>40 Americans, 40 Hindus</p>
<p>Americans were more future oriented and internal compared with Hindu students.</p>	<p>Past vs. future orientation, externality</p>	<p>Sentence completion</p>	<p>50 Americans, 50 Hindus</p>
<p>The parental family takes more care of Hindu students' life planning compared with American students.</p>		<p>Male college students</p>	

Kuo & Spees (1983)

Meade (1968)
Meade (1971)

TABLE 2—Continued

Study	Sample cultures	Age	Method	Dependent variable	Results
Meade (1972)	50 from communities of the U.S., Brahmia, Kshatriya, Vasiya, Sudra, Muslim, Sikh, and Parsee, in India	Male college students	Sentence completion	Past vs. future orientation, achievement motivation	American males tend to be more future oriented and to have stronger achievement motivation compared with Brahmins, Vasiyas, Sudras, and Muslims. However, no differences between Americans and Kshatriyas, Parsees, and Sikhs were found.
Mehta et al. (1972)	182 Americans, 184 Indians	13-15	Future events questionnaire	Content, extension (years)	Education and work were the most often mentioned contents of future events by both sexes in both countries. The Americans were more interested in their own marriage, children, and leisure activities, whereas Indians were more likely to refer to their own health and other people's courtship, marriage, and children as well as the death of others. Indian girls mentioned work more frequently than American girls, whereas American girls referred more often to autonomy.
	48 Americans, 149 Indians				In both countries, the high status adolescents show more extensive future orientation than low-status adolescents.

<p>Poole & Cooney (1987)</p>	<p>440 Australians, 162 Singaporeans</p>	<p>14-15</p>	<p>Future events questionnaire</p>	<p>Content, extension (years), affects</p>	<p>Singaporean adolescents were more interested in future education and work but less in topics concerning their future marriage. Australian adolescents had shorter median extension than Singaporean youths. Singaporean adolescents had a more positive outlook about the future of society compared with Australians. Australian females were more interested in their future family compared with Australian males, whereas the converse was true for the Singaporean adolescents. American adolescents indicated the greatest degree of autonomy followed by Australians. The family members have more power in decision-making about adolescents' future in India compared with the U.S. or Australia. Jewish adolescents expressed fewer concerns than Arab adolescents in future education, work, career, and collective issues. Arab adolescents had a more detailed and concrete concept of future marriage and family. Arab females had more higher education concerns than the three other groups.</p>
<p>Poole, Sundberg, & Tyler (1982)</p>	<p>About 200 Americans, Indians, and Australians</p>	<p>13-15</p>	<p>Decision-making questionnaire</p>	<p>Auton. of decision-making</p>	<p>Australian females were more interested in their future family compared with Australian males, whereas the converse was true for the Singaporean adolescents. American adolescents indicated the greatest degree of autonomy followed by Australians. The family members have more power in decision-making about adolescents' future in India compared with the U.S. or Australia. Jewish adolescents expressed fewer concerns than Arab adolescents in future education, work, career, and collective issues. Arab adolescents had a more detailed and concrete concept of future marriage and family. Arab females had more higher education concerns than the three other groups.</p>
<p>Seginer (1988a)</p>	<p>112 Israeli Jews, 116 Israeli Arabs</p>	<p>High-school seniors</p>	<p>Hopes & fears questionnaire</p>	<p>Content, specificity</p>	<p>Australian females were more interested in their future family compared with Australian males, whereas the converse was true for the Singaporean adolescents. American adolescents indicated the greatest degree of autonomy followed by Australians. The family members have more power in decision-making about adolescents' future in India compared with the U.S. or Australia. Jewish adolescents expressed fewer concerns than Arab adolescents in future education, work, career, and collective issues. Arab adolescents had a more detailed and concrete concept of future marriage and family. Arab females had more higher education concerns than the three other groups.</p>

TABLE 2—Continued

Study	Sample cultures	Age	Method	Dependent variable	Results
Solantaus (1987)	600 Austrians, 596 British, 665 Finnish	11-15	Hopes & fears questionnaire	Content	The most frequent hope in each country concerned work and employment. The top worry among Austrians was school and studies, among the British work, and employment, and among Finnish adolescents nuclear war. Austrian adolescents expressed more often than others hopes and worries about school and studies, nuclear family and other human relations. British respondents' hopes and worries exceeded others in work and employment, the material aspects of life, and their future family. Finnish adolescents worried more about war, global affairs, and their own health compared with other groups.
Sundberg, Poole, & Tyler (1983)	100-300 Americans, Indians, & Australians	14-15	Future events questionnaire	Content, extension (years)	Finnish adolescents had sex differences in fewer categories than others. Adolescents from all countries expressed more hopes and worries about work and employment with age. Only among Finns did hopes concerning their future family increase with age. All the groups agreed about their two top future events, education and work. Austrian and Americans more often than Indians mentioned their own courtship, marriage, and

children as well as their leisure activities and acquisitions. Indian adolescents mentioned more frequently than other groups courtship and the marriage of others, health, the death of others, and specific occupations.

The Indian sample showed the largest sex differences, with girls showing a short time span and boys looking farthest into the future.

Indian adolescents perceived their families as being more cohesive than Americans, while American adolescents perceived themselves as more autonomous and decisive.

In India, the father was influential in decisions concerning the boys' future, while in the U.S., the mother ranked higher in perceived influence.

Dutch adolescents have the widest variety of occupational possibilities, American boys and Indian girls the smallest.

Americans listed most free-time activities and Indian adolescents least.

Mexican adolescents place greater value on material advancement in the future, whereas Americans stressed family-oriented activities more.

Mexican parents were more optimistic about their children's future than Americans.

Mexican families were more patriarchal in the planning of adolescents' future, whereas power related to planning was more equally distributed across family members in the U.S.

Sundberg
et al.
(1969)

240 Americans, 182
Indians

14-15

Decision-making
questionnaire

Autonomy of
decision-making

Indian adolescents perceived their families as being more cohesive than Americans, while American adolescents perceived themselves as more autonomous and decisive.

Sundberg
& Tyler
(1970)

48 Americans, 48
Indians, 48 Dutch

14-15

Occupation
and
free-time
activities
check-list

Content

In India, the father was influential in decisions concerning the boys' future, while in the U.S., the mother ranked higher in perceived influence.

Dutch adolescents have the widest variety of occupational possibilities, American boys and Indian girls the smallest.

Americans listed most free-time activities and Indian adolescents least.

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Mexican families were more patriarchal in the planning of adolescents' future, whereas power related to planning was more equally distributed across family members in the U.S.

Tallman,
Maroltz-
Baden,
& Pindas
(1983)

American & Mexican
adolescents and their
parents

12-15

Future
decision-making
game,
interview

Content,
family
decision-making
structure

Americans listed most free-time activities and Indian adolescents least.

Mexican adolescents place greater value on material advancement in the future, whereas Americans stressed family-oriented activities more.

Mexican parents were more optimistic about their children's future than Americans.

Mexican families were more patriarchal in the planning of adolescents' future, whereas power related to planning was more equally distributed across family members in the U.S.

Western Europe, has radically influenced the position of Finnish women (Position of Women, 1984). Consequently, the fact that working outside the home is an essential part of anticipated life-span development for Finnish women is also reflected in girls' thinking about the future.

In all, the results indicate that sex differences in adolescents' interests have their basis in the cultural context in which adolescents are living and in the related knowledge of anticipated life-span development.

Family decision making. A number of studies show that parents' role in their children's decision making concerning the future varies to great extent across different cultures. For example, Poole, Sundberg, and Tyler (1982) found that American adolescents indicated the greatest degree of autonomy followed by Australians, whereas Indian adolescents showed least autonomy. On the contrary, Sundberg, Sharma, Rohila, and Wodtli's (1969) results showed that Indian adolescents also perceived their families as being more cohesive compared with American youths. Tallman et al. (1983) found that Mexican families, compared with American, were more patriarchal in planning their adolescents' future, whereas the power related to the planning was more equally distributed across family members in the United States. These results are of more general interest because they suggest that the unit of planning for the future also changes across cultures: while in Western societies, planning for the future is mainly carried out by adolescents themselves, the whole family participates in more traditional types of society. Thus, in these societies, research into individual future planning may be an inadequate way of studying the whole issue of orientation to the future.

RESEARCH ON PERTINENT TOPICS

The review has so far concentrated on the development of future-oriented motivation, planning, and evaluation. However, research has also been carried out on pertinent aspects of adolescent development, such as identity formation and career decision making. A summary of some of the findings follow, in as far as they add to our knowledge about adolescents' future orientation.

Identity Formation

Research on identity development, in particular that based on the identity status approach (Marcia, 1980) and the more recent process approach (Bosma, 1985), is closely related to the development of orientation to the future. In Marcia's (1980) model the identity status of adolescents, i.e., whether they are in the identity achievement, foreclosure, identity diffusion, or moratorium stage, is determined by three factors: (1) the content of commitment (e.g., vocational, ideological, and sexual orientation), (2) the amount of exploration in these areas, and, finally, (3) the strength of commitment to specific decisions (Bosma, 1985). In fact, each of these

factors can be described in terms of future orientation. Content of commitment is closely related to that of future-oriented motivation. On the other hand, exploration is a prerequisite of effective planning, because it provides knowledge about different alternatives for future life. Strength of commitment refers to the extent to which adolescents are motivated to realize their specific goals. Rappaport et al. (1985) found recently that the achievement and foreclosure groups, being characterized by high levels of commitment, generally scored more highly on measures of futurity than the diffusion and moratorium groups, showing a low level of commitment.

Bosma (1985) reformulated Marcia's structural approach and described identity formation as a developmental process. According to him, the content of commitment depends on personal needs and the opportunities offered by society. Therefore, commitment is not restricted to occupation, ideology, and sex, but can occur in any personally relevant areas. Bosma also suggests that, even though the strength of commitment varies developmentally, it is not always stronger in older adolescents than in younger ones.

Bosma's (1985) results concerning identity formation are also similar to those reviewed here. He found, for example, that school, occupation, leisure-time activities, friendship, and parents were among the most important topics of exploration and commitment related to identity formation. Moreover, he showed that lack of interest in politics and ideological issues is striking among adolescents, even though these domains of life are expected to be one of the major topics of identity formation (Marcia, 1980). Sex differences found by Bosma (1985) were also similar to those reviewed here: females more often considered interpersonal areas to be important, whereas males highlighted school, occupation, politics, and money. Bosma also found that older subjects had stronger commitment than younger ones, but that the strength of commitment varied in different contents. However, no clear age differences were found with regard to the amount of exploration. This may be due to the fact that the youngest age group of Bosma's study consisted of 13- to 16-year-old adolescents who might be expected already to have begun their identity formation.

It has also been found that the influence of family relationships on adolescent identity formation is similar to their influence on orientation to the future. Since a number of reviews have been published on this topic (Grotevant & Cooper, 1986; Marcia, 1980; Waterman, 1982), only a brief summary of the findings follow. First, foreclosures (being low in exploration but high in commitment) seem to have closest relationships with their parents compared with other groups. There is considerable pressure and support for adolescent conformity to family values among foreclosure families (Marcia, 1980). Second, the parents of identity diffusion adolescents (lacking both exploration and commitment) have been characterized as indifferent, inactive, nonunderstanding, and negative (Waterman,

1982). These parents do not encourage adolescent participation, which is also reflected in the fact that adolescents are passive in family interaction (Grotevant & Cooper, 1986). Moratorium adolescents (showing high exploration but low commitment) seem to have an ambivalent relationship with their parents, whereas identity achievers (high exploration and high commitment) show positive but moderately ambivalent family relationships (Waterman, 1982). Both moratorium and identity achievement adolescents have been shown to be critical of their parents and also likely to report themselves as being in conflict with their family (Waterman, 1982).

In sum, close parent-child relationships seem to increase the likelihood of early commitment in decisions concerning major developmental tasks. Research on adolescents' future orientation showed similar results (e.g., Nurmi, 1987b). Powers, Hauser, Schwartz, Noam, and Jacobson (1983) also found that adolescent ego development was most advanced when families presented a high level of noncompetitive sharing of perspectives or challenging behavior within the context of firm support. On the other hand, a critical attitude toward parents seems to increase the amount of exploration, perhaps because the parental model is found to be unsatisfactory. However, Cooper, Grotevant, and Condon (1983) and Bell and Bell (1983) reported results showing that disagreement with the mother and the father influence the adolescent child's exploration, ego development and positive self-regard in different ways.

In all, research on identity formation provides a somewhat similar view to adolescent development as does research on future orientation.

Career Decision Making

It was shown earlier that two of the major topics of adolescents' future-oriented interests were occupation and education. It is not therefore surprising that vocational development has been conceptualized somewhat similarly to future-orientation (Harren, 1979; Heppner, 1978). For example, Harren (1979) described career decision making in terms of a four-stage sequential process: awareness, planning, commitment, and implementation. First, based on the awareness of his or her present level of success and satisfaction, the individual recognizes the need to explore alternatives and begin planning. Second, the planning stage consists of exploring task- and self-related information and settling upon a specific alternative. Third, the individual incorporates and integrates commitment with his or her self-concept system and, simultaneously, exaggerates the positive aspect of the chosen alternative. Finally, during the implementation stage, the individual is inducted into the new context, then reacts to it and, finally, is assimilated into it.

Taylor (1985) investigated the role of occupational and self-related knowledge in career development. She found, for example, that occupa-

tional knowledge and vocational self-concept crystallization influenced students' school-to-work transition: both the levels of occupational knowledge and the awareness of vocational abilities and interests predicted the extent to which students received job offers both before and after college graduation. Similarly, Neimeyer, Nevill, Probert, and Fukuyama (1985) found that highly integrated occupational schemata were associated with more effective vocational decision making. Taylor's (1985) results further indicated that occupational knowledge was related to increased exposure to job information provided by others. Self-concept crystallization, on the other hand, was related to different experimental activities relevant to the future occupation.

Since research on career decision making has recently been reviewed elsewhere (Osipow, 1983; Tinsley & Heesacker, 1984; Zunker, 1986), it is not discussed in detail here. However, findings do seem to give a view of adolescent development somewhat similar to the present review of adolescents' orientation to the future. For example, older adolescents have been shown to indicate more concern for vocational opportunities and information about careers than younger ones (Osipow, 1983). Females have been shown to score more highly than males on homemaking commitment and career commitment, and males have been shown to express stronger sentiment for combining home and career. On the other hand, boys and girls were not found to differ significantly in their actual knowledge about occupations (Tinsley & Heesacker, 1984). Moreover, relatively more intelligent adolescents have been shown to plan more effectively in general than their less intelligent contemporaries (Osipow, 1983).

The recent models and results concerning vocational development were found to be similar to those concerning adolescents' orientation to the future. However, although career decision making plays an important part in orientation to the future, it is only one aspect of a complex process in which people individually cope with different developmental tasks.

ADOLESCENT PROBLEM BEHAVIOR AND ORIENTATION TO THE FUTURE

Although the majority of adolescents were shown to be motivated to plan their future, there is, however, a group of young people who are not interested in major developmental tasks. Nurmi (1989b), for example, found that 16% of 11- and 15-year-olds did not mention topics related to future occupation or education when they were interviewed about their future goals and plans. Even though it is a minority group, it is an important one, because its members may manifest other types of problem behavior as well, such as delinquency, problems in school and drug use. A summary of research on the relationship between adolescent problem behavior and future orientation follows.

Trommsdorff and Lamm (1980) reviewed research about delinquents' future orientation and concluded that the findings are contradictory. According to them, the stereotype delinquent who ignores the possible future consequences of his or her present behavior, acts more impulsively and is less inclined in delay of gratification has been found to be difficult to establish. However, research does seem to suggest that the future orientation of delinquents is less optimistic (Rychlack, 1973; Trommsdorff & Lamm, 1980), less structured (Trommsdorff & Lamm, 1980), less extended (Black & Gregson, 1973; Siegman, 1961) and more oriented toward private concerns (Trommsdorff & Lamm, 1980) compared with normal adolescents. However, as the results are correlational by nature, it is impossible to know whether less extended, less structured, and less pessimistic future orientation increases the likelihood of delinquent behavior or vice versa. For example, general pessimism and present orientation may be followed by behavior which is not influenced by possible negative consequences. Another possibility is that being labelled as delinquent, and the related life context, provide a basis for pessimism and short temporal extension.

A few studies have looked at how institutionalization, a typical life situation for delinquents, influences adolescents' orientation to the future. Trommsdorff and Lamm (1980), for example, suggested that the temporarily institutionalized person's orientation to the future reflects the fact that a new beginning must be made following release: imprisoned delinquents noted more fears pertaining to family life and personal development and more hopes pertaining to occupation compared with a sample of normal individuals. One typical problem of institutionalized delinquents may be that the time for solving different age-specific developmental tasks, such as future education, occupation, and marriage, has passed by the time of their release. This may cause extra problems for them as they try to begin a normal adult life.

Landau (1969) also found that the date of release was a significant boundary for the inmate's future orientation: the nearer it was, the less extended was the future orientation. This corresponds with the findings reviewed here suggesting that anticipated life-span events provide a basis for future-oriented interests and plans. Furthermore, Landau (1976) showed that the closer the prisoner is to his release, the greater the similarity between him and noninstitutionalized people.

Little research has been carried out on the relationship between future orientation and other types of problem behavior. Trommsdorff (1986) found that drug-using delinquents were more pessimistic than nonuser delinquents. Gilchrist and Schinke (1987) recently reviewed studies showing that adolescents who postpone sexual activity tend to have better developed problem-solving and decision-making skills and future orien-

tation. Moreover, young people who experience heterosexual and contraceptive problems appear to have a limited sense of options, poor self-understanding, and strong denial that pregnancy is a possible consequence of their behavior. However, as these results are based on correlational procedures, it is also possible that the life context of adolescents showing problem behavior influences their orientation to the future. For example, although Mindick, Oskamp, and Berger (1977) showed that people who suffer contraceptive failures exhibit shorter temporal extension than a control group, they further suggest that differences in future orientation are more likely to be due to changes in life context after the experience of being pregnant than to a general attitude toward the future.

In all, these results seem to suggest that adolescents showing a variety of problem behavior see their future differently from their contemporaries. However, some of these differences seemed to be consequences rather than causes of problem behavior. An interesting approach to this issue of causality was put forward recently by Trommsdorff (1986). She suggested that delinquents' thinking about the future may be part of developmental cycles that are reinforced as different types of global strategy. Pessimistic future orientation, for example, influences adolescents' environmental conditions in a way that also reinforces original negative anticipations. In this case, pessimistic, less extended, and less structured future orientation assumes self-fulfilling qualities.

SUMMARY AND CONCLUSIONS

Adolescents' Orientation to the Future

The review showed that the content and temporal extension of adolescents' interests and goals variously reflect expected life-span development, characterized in life-span approach as developmental tasks (Havighurst, 1948/1974), normative life-tasks (Dittmann-Kohli, 1986) or "milestone events" (Lessing, 1972), and their "normative time-table" (Bengtson & Black, 1973). Moreover, as adolescents grow older, they first become interested in the developmental tasks of late adolescence (education) and then in tasks of early adulthood (future occupation and family) (Nurmi, 1989a). However, irrespective of their age, young people were interested in the life events they expected to be actualized at the end of the second and the beginning of the third decade of life. It therefore follows that younger adolescents' thinking extends further into the future measured by years compared with relatively older ones. Interestingly enough, it has recently been shown that only few adolescents extend their thinking to events expected to be realized after the age of 30 (Nurmi, 1989b). Consequently, an important task for future research would be to

study how orientation to the future develops during early adulthood, after the expected realization time of the goals set during adolescence has passed by. Nurmi (1989e) recently reported preliminary data showing that, while interests in future education and family decrease during early adulthood, those relating to work and property do not. Moreover, in middle age, people seem to become increasingly interested in their children's future and their own health preoccupies them in old age.

Adolescents' fears and worries relating to the future, on the other hand, concerned threats related to the fulfillment of the major normative life-tasks (unemployment, divorce), non-normative life-events related to their parents' family (death and divorce of parents), and global historical events (nuclear war).

The review also revealed that, although children in their early teens already have basic planning skills (Oppenheimer, 1987), the levels of planning, realization, and knowledge concerning the future increase with age up to the early 20s. Since differences in cognitive skills measured by intelligence tests seem to explain only a small proportion of individual variance in planning activity, it was suggested that changes in life-span-related opportunities for meaningful planning are also responsible for the increase in planning for the future during adolescence. Similarly, Cantor and Kihlstrom (1987) discussed the importance of the careful analysis of the life context to which individuals apply their intelligence. Future research, therefore, could well investigate the development of planning for the future taking into account changes in planning skills, the level of knowledge of specific life domains, and changes in contextual factors.

The studies which were reviewed covering the third process, evaluation, revealed that adolescents' thinking about the future becomes more internal with age. Boys in particular become more optimistic, whereas girls showed a tendency to become more pessimistic. Experiencing more challenges, responding less positively to challenge, and simultaneous negative self-appraisal seem to render girls more susceptible to anxiety, and thus to depressive affect, in adolescence (review: Petersen, 1988). One source for the increased amount of challenge for girls may be the conflict in the modern female role between achievement pressures in the areas of both future family and occupation. However, since only a few studies have investigated the development of causal attributions and affects concerning the future, there is an evident need for future research on this topic.

The review also showed that a number of factors in the life context, such as family relationships, sex roles, and socioeconomic status, influenced adolescents' orientation to the future. The level of parental control and the goals they have concerning their children's future were found to influence adolescents' future-oriented interests. Moreover, parents seem

to provide a model for how adolescents plan to solve different developmental tasks, in particular that of intimacy. Parental support was found to increase adolescents' optimism and internality concerning the future. On the other hand, the effects of sex roles and socioeconomic status were interpreted as being due to the differences in anticipated life span development between the subgroups compared. For example, it was suggested that adolescents with high socioeconomic status extend further into the future than those with a low socioeconomic background because of differences between the groups in the expected time of realization of the principal developmental tasks (Boocock, 1978). Similarly, it appears that the sex differences in adolescents' interests, and how far into the future they extend, are due to the differences in boys' and girls' anticipated life-span development.

Finally, although adolescents from a number of cultures seem to agree about two main domains of their interests, future work and education, consistent cross-cultural differences were also found: adolescents from Anglo-American cultures are relatively more interested in leisure activities and personal happiness, adolescents from countries with a high rate of urbanization seem to be relatively more interested in future education and career, whereas adolescents from traditional cultures are most concerned about topics related to their parents' family. It was also interesting to note that, in traditional societies such as India and Mexico, parents and family participate in the planning of adolescents' future to a greater extent than in Anglo-American cultures.

Theoretical Framework

In this review, orientation to the future was described in terms of three processes, motivation, planning activity, and evaluation. People first set goals based on comparison between their motives and values and their expectations concerning the future. Second, they must work out how to realize these goals, which is typically done by means of planning. Third, people evaluate the possibility of achieving their goals and actualizing the plans they have constructed. Causal attributions and affects concerning the future were thought to play an important part in this evaluation. Orientation to the future was also described from a contextual point of view. It was suggested that normative life events and their timetable provide the context in which people's future-oriented goals and interests develop and that life-span-related changes in action opportunities were the basis of the development of future-oriented plans and strategies. Moreover, it seems that standards and deadlines for the successful solution of life-tasks may spark off the evaluation process involved in orientation to the future. These contextual influences are seen as being mediated by cultural knowledge about anticipated life-span development. The

basic processes in the development of orientation to the future in family context were also described. It was suggested that, by setting normative standards, tutoring, and providing role models and support, parents influence their children's future orientation.

This framework differs in a variety of ways from existing ones in this research field (reviews: Hoornaert, 1973; Rakowski, 1979, de Volder, 1979). Earlier research typically described future-orientation in terms of intraindividual properties. Efforts were made to establish its antecedents (e.g., Klineberg, 1967) and consequences (Agarwal, Tripathi, & Srivastava, 1983; Gjesme, 1981). The main focus of this trait-theoretical approach was the investigation of individual differences in interest in the future and in how far into the future thinking extends, and so on. Moreover, orientation to the future was described in terms of this specific research field which was not associated with general psychological theory (Hoornaert, 1973; de Volder, 1979). By way of contrast, future orientation is now placed in the context of modern psychological concepts, such as goals, plans, schemata, attributions, and affects. It is described as a process consisting of different substages rather than individual traits. Furthermore, emphasis is placed on the role of contextual factors, such as age-related life-tasks, action opportunities, and developmental standards, in the development of future orientation. The application of this theoretical approach provided the opportunity to reinterpret the research field and to find a straightforward pattern of results not afforded by earlier reviews (Rakowski, 1979; de Volder, 1979). The framework also facilitated comparison of research on future orientation with other pertinent areas, such as the development of planning skills, identity formation, and career decision making. For example, describing orientation to the future in terms of goal-setting, planning, and evaluation in different domains of life helped to identify connections between future orientation and identity formation as well as some similarities in the two research fields. Finally, an attempt was made to describe the development of orientation to the future in a family context. Although the developmental processes involved in the model are relatively general, the framework was useful in interpreting results concerning the development of adolescents' future orientation and in suggesting directions for future research. The nature of development has been discussed earlier (Trommsdorff, 1983, 1986), but no similar systematic description has been presented.

Although this approach is a general framework rather than a model that can be tested in one or two studies, two types of evidence for its construct validity already exist. Nurmi (1989c) recently used confirmatory factor analysis to illustrate that the model consisting of three latent constructs, motivation, planning, and evaluation, fitted the covariance matrix of seven observed variables based on interview data about adolescents'

goals and hopes. The present review also provided some evidence of construct validity (Nunnally, 1978): the variables that were related to the same theoretical construct showed a similar pattern of results, in particular in relation to one major variable, age.

The conceptualization presented here also proved useful in reviewing studies on adolescents' future orientation and planning. Since the framework facilitates the organization of earlier research, contrary to some previous reviews (Rakowski, 1979; de Volder, 1979), a number of consistent findings emerged. For example, by emphasizing the importance of the content of goals and expectations as indicators of future-oriented motivation, it was possible to bring out consistent similarities in adolescents' orientation to the future across different studies applying slightly different methods. Moreover, evident developmental changes in adolescents' future-oriented interests were found. Emphasizing the role of anticipated life-span development in the formation of future-oriented goals made it easier to understand why extension, when measured as years from the time of the study, decreased with age. It also made it possible to put forward preliminary explanations for differences in adolescents' future orientation in relation to sex, socioeconomic status, and culture. For example, the review showed that differences in temporal extension between adolescents with high and low socioeconomic status are due to the differences in their anticipated life-span development. Based on the contextual approach, it was also suggested that any increase in planning for the future with age may reflect changes in the planning context rather than the development of planning skills. Conceptualizing evaluation in terms of causal attributions and affects also provides the basis for understanding that both internality and optimism seem to show similar developmental patterns. The model also predicted the importance of self-esteem to causal attributions, which was found in a few studies (Nurmi, 1989d; Plante, 1977). The traditional approach characterizing future orientation as a personality trait does not serve to explain these findings (de Volder, 1979).

Although the framework presented is a general approach rather than a specific model, it is possible to set out a number of hypotheses, the validity of which can be tested. First, the results showed that adolescents' future-oriented goals and their temporal extension reflected expected life-span development. This could be further tested by comparing two groups of adolescents living in cultural settings which differ radically in relation to anticipated life-span development. If it was found that future-oriented goals and related temporal extension were similar despite the evident differences in anticipated life-span development, it would mean the model was flawed.

Second, any relevant change in knowledge concerning the anticipated life-span development might be expected to be followed by changes in

specific goals. For example, providing adolescents with forecasts about the future development of labor markets should influence their vocational goals. On the other hand, any increase in people's self-esteem, due to therapeutic interventions, for example, should be followed by more internal beliefs in their own influence over their future.

Third, although adolescents' interests and goals were shown to reflect expected life-span development, earlier research did not provide data about the extent to which contextual factors influence the development of planning and evaluation. However, on the basis of the theoretical framework, it might be expected that age-related changes in action opportunities, for instance those concerning educational choices, influence future planning irrespective of changes in individual planning skills. This type of increase in the level of planning, which is due to contextual changes, should occur relatively rapidly in any specific domain of life, and there should be no similar increase in relation to other domains. Moreover, if normative standards for solving age-specific developmental tasks apply, adolescents who have not succeeded in realizing a specific developmental task at certain ages might be expected to display increasing anxiety and decreasing self-esteem. This is a somewhat similar phenomenon to the moratorium state in identity formation literature (Marcia, 1980).

Next, evident changes in the content of future-oriented goals are likely during early adulthood as age-specific developmental tasks change. Nurmi (1989e) recently presented preliminary data showing that changes in adults' interests with age also reflect age-related life-tasks.

Finally, the developmental aspects of the framework can be tested by investigating the extent to which adolescents' goal-setting is based on goals, values, and standards that are typical of their parents, the extent to which parents' knowledge of different domains of life is associated with adolescents' skills and coping resources, and the extent to which parental support is related to adolescents' evaluation of their future. By contrast, other relationships between future orientation and the different dimensions of family interaction would discredit the model. One example would be if parental support were shown to correlate positively with either the level of adolescents' goals or the complexity of their plans without any association with causal attributions and affects.

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