A PHASE MODEL OF TRANSITIONS: COGNITIVE AND MOTIVATIONAL CONSEQUENCES

Diane N. Ruble

I. Introduction

The question of continuity and discontinuity in development is among the most basic as well as controversial issues in developmental psychology today. Human lives are characterized by periods of relative stability and periods of change or transition. During times of transition, major reorganization, disruption, and discontinuity may occur, often affecting the personal and interpersonal adjustment of the individuals involved.

The literature offers numerous examples of such transition phenomena. One widely known illustration, and one of my own research interests, concerns the transition to parenthood (Belsky, Rovine, & Fish, 1989; Fleming, Ruble, Flett, & Van Wagner, 1990; Ruble, Fleming, Hackel, & Stangor, 1988). Two particularly well documented disruptions associated with this transition are postpartum depression and marital problems. A second illustration is the drop in self-esteem and self-evaluation of children across the transition to junior high school. Two major programs of research—Eccles and her colleagues (Eccles & Midgley, 1990; Wigfield, Eccles, Maclver, Reuman, & Midgley, 1991) and Simmons and her colleagues (Simmons & Blyth, 1987; Simmons, Rosenberg, & Rosenberg, 1973) have shown that the transition to junior high school is often marked by a sharp drop in positive attitudes toward school, negative self-concept and body image, increases in anxiety and worry, and negative changes in motivational orientations.

Curiously, in spite of the significance of these periods of change, there has been relatively little theorizing about why the changes occur. There is evidence pointing to certain moderator variables (e.g., adolescent girls are more likely to show a drop in self-esteem than are boys), but little is known about what factors mediate the impact of a period of transition on the individual. In a provocative
II. Illustration from Data on Transition to First Motherhood

Figure 1 shows some cross-sectional data on women's information seeking as a function of stage in the transition to motherhood (Deutsch, Ruble, Fleming, Brooks-Gunn, & Stangor, 1988). Six groups of women were compared, representing three stages of pregnancy, two stages postpartum, and a "prepregnant" comparison (i.e., women who expected to become pregnant within a few years). The women were asked to report how much information they had received in the previous month on 12 topics related to motherhood, pregnancy, or labor and delivery. The lines in the figure represent the sum of many different types of information sources (books, friends, doctors, and so on). The solid line reflects the mean amount of information received about motherhood; the dashed line, about pregnancy; and the dash-and-dot line, about labor and delivery.

Several interesting observations can be made about these data. First, women clearly anticipate the event by engaging in active information seeking as soon as they enter a transitional state. The difference between pregnant and prepregnant phases was significant for all topics. In addition, the women are clearly seeking the information; it is not imposed upon them. Books are the most frequently cited source on every topic for all groups of women except prepregnant, who are more likely to refer to friends.

Second, the women are gathering information about all three topics in a way that shows clear peaks of interest at particular times (e.g., peak in the first trimester for information about pregnancy). This information may be used to construct a set of expectations about what each of these experiences will be like. For example, we found that the amount of information seeking about motherhood during pregnancy was related to the formation of mothering self-definitions (a woman's expectations and confidence about how good a mother she will be). Such expectations may have long-term consequences; the maternal expectations formed during pregnancy carried over to affect postpartum mothering self-definitions (Deutsch, Ruble, Fleming, Brooks-Gunn, & Stangor, 1986).

Interestingly, Eleanor Maccoby published a study 30 years ago that came to similar conclusions concerning critical periods in receptivity to information among new mothers. She and her colleagues (Maccoby, E., Maccoby, N., Ro-
III. A Phase Model of Transitions

The present model of transition phases is shown in Table 1. The basic premise of the model is that different phases of transitions can be identified that are associated with distinct orientations toward social information. The analysis is organized around three core phases proposed to occur in most transitions (Construction, Consolidation, and Integration, as shown across the top of the table). At each of the three phases, an individual's orientation toward information shifts in predictable and meaningful ways. As shown in Table 1, each phase is characterized by different levels and types of knowledge representations and differences in three types of cognitive–motivational orientations: information seeking, information processing, and impact. The first orientation variable refers to level of interest in and focus of social information seeking. Information processing refers to how new information is perceived and remembered. Impact refers to the importance and affective significance of this new information and its application to self-regulatory and interpersonal behaviors. Table II illustrates these variables in terms of the transition to motherhood.

Phase 1, Construction, is proposed to occur once an individual enters a new psychological situation in which his or her old categories and expectations may not apply, such as becoming pregnant for the first time. Knowledge is low and generally limited to superficial, observable aspects of the topic (e.g., that parenting involves learning numerous caretaking activities). This phase is characterized by active information seeking to construct new images, as illustrated by the ups and downs of the information-gathering data shown in Fig. 1.

Phase 2, Consolidation, is reached when the fundamental knowledge has been acquired and the individual attempts to draw some conclusions about the topic and, when relevant, how it applies to the self (e.g., what will I be like as a mother?). Because the basic content has been mastered, knowledge representation has an organizational structure that allows inferences about more abstract properties associated with the topic (e.g., areas of competence associated with mothering). Given the high level of uncertainty at both of the first two phases (first about the nature of the topic, then about inferences to be drawn), the individual has a high level of interest in gathering information at both times. In order to support the new conclusions being formed, however, orientations toward information are distinctly different at the two phases. Whereas the first phase is characterized by a general interest and openness to information (e.g., a willing-

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Phase Model of Transitions</th>
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<tbody>
<tr>
<td>Variable (Construction)</td>
<td>Phase 1</td>
</tr>
<tr>
<td>Level of knowledge</td>
<td>Low</td>
</tr>
<tr>
<td>Type of knowledge</td>
<td>Superficial, procedural, concrete, observable</td>
</tr>
<tr>
<td>Cognitive–Motivational Orientation</td>
<td>Information seeking (Level of interest and focus)</td>
</tr>
<tr>
<td>Information processing (Accessibility, organization, and memory)</td>
<td>Based on relevance to topic, but not on any specific conclusion</td>
</tr>
<tr>
<td>Impact (Importance, affective significance, and application)</td>
<td>Low</td>
</tr>
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TABLE II

Example of Phases Using the Transition to First Motherhood

<table>
<thead>
<tr>
<th>Variable</th>
<th>Transition phases</th>
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<tr>
<td></td>
<td>Phase 1</td>
<td>Phase 3</td>
</tr>
<tr>
<td>(Construction)</td>
<td>Representation</td>
<td>(Integration)</td>
</tr>
<tr>
<td></td>
<td>Extensive knowledge of mothering</td>
<td>Mothering knowledge near asymptote</td>
</tr>
<tr>
<td>Level of knowledge</td>
<td>Incomplete often inaccurate knowledge of mothering</td>
<td>Inferences about traits and abilities in relation to self</td>
</tr>
<tr>
<td>Type of knowledge</td>
<td>Specific behaviors and stereotypes (e.g., feeding; nurturing)</td>
<td>Individual differences in mothering schemata</td>
</tr>
<tr>
<td>Information seeking</td>
<td>Active information seeking focused on defining mothering</td>
<td>Active information seeking, focused on forming expectation about self as mother</td>
</tr>
<tr>
<td>Information processing</td>
<td>Information perceived and remembered in terms of application to mothering</td>
<td>Information perceived and remembered in terms of personal conclusions about mothering</td>
</tr>
<tr>
<td>Impact</td>
<td>Little affective or behavioral reactions to information about mothering</td>
<td>Mothering information has affective significance; behavior monitored to be consistent with new conclusions</td>
</tr>
<tr>
<td></td>
<td>Reactions depend on individual differences in mothering self-schema</td>
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</tbody>
</table>

ness to consider information that suggests 1 may have problems in the mothering role), information seeking becomes more focused during the second phase as conclusions are formed.

Perception and memory processes are also expected to shift in relation to growing knowledge about the topic. As the concept or experience becomes defined at Phase 2, information processing is likely to become schema driven (Bjorklund, 1987; Fiske & Taylor, 1991) so that information is organized in terms of existing conclusions and information consistent with these conclusions is more easily retrieved. To illustrate, information inconsistent with the mothering conclusions already formed may be ignored or forgotten. A woman who has

decided to quit her job and be a full-time mother, for example, may show preferential attention and memory for information showing deleterious, as opposed to positive, effects of child-care facilities. In contrast, during the Construction phase, the same woman may have been equally responsive to the two kinds of information. Consistent with this general idea, additional analyses of the Deutsch et al. (1988) data shown in Fig. 1 suggest that women's global maternal self-definitions do not change as a function of new information received after the birth of the baby.

Finally, the impact of topic-relevant information varies across phases. During the Construction phase, information is primarily relevant to definition and has few self-relevant implications. Thus, new information serves only to enlarge and modify the data base and has little affective significance, even if the information implies something negative about becoming a mother. Once the individual is engaged in drawing inferences about how the topic applies to the self, however, some kinds of information will be more welcome than others. Moreover, investment in the conclusions being drawn may lead those conclusions to become imperatives (e.g., believing that there is only one way to be a good mother), and behavior may be modified to match these conclusions (e.g., a woman may attempt to appear more nurturant in interpersonal interactions).

Phase 2, Integration, refers to processes that maintain and elaborate upon the conclusions drawn, allowing the individual to integrate them with other identities and to function more flexibly in terms of them. Although the knowledge base continues to grow, new information is not actively sought, and information that could change conclusions is resisted, though not necessarily for defensive reasons. As noted in Ruble and Frey (1991), this is a time when individuals may avoid discrepant information strategically in order to maintain goal-directed activity. Continued emphasis on evaluation, for example, may undermine mastery efforts (Deci & Ryan, 1987). Because the basic knowledge base and conclusions remain, information processing should still be schema driven, though individual differences in knowledge and specific conclusions drawn should contribute to variations in schematic processing. In addition, individual differences in knowledge, conclusions, and external constraints or opportunities should contribute to variations in goals at this time, which in turn influence the impact of relevant information. In brief, then, individual differences in "schematicity" (Bem, 1984; Markus, Crane, Bernstein, & Sidali, 1982) or importance (Costanzo & Fraenkel, 1987) may determine the extent to which inconsistent information is resisted, negative information is distressing, or deviations from expectations are tolerated. Relative to the Consolidation phase of late pregnancy, for example, the likelihood that a woman at this phase would interpret new information about herself in terms of mothering depends on the relative significance of mothering in her self-definitional hierarchy (Deaux, 1991).

A major aim of the current article is to suggest that this kind of transition
analysis may be a useful way to conceptualize certain kinds of social–cognitive developmental changes and their implications for behavior. As children acquire new social concepts, related information may become personally significant for the first time, just as becoming a mother introduces new, personally significant categories to a woman.

This idea that the transition to parenthood is in any way similar to social–cognitive transitions may seem surprising. After all, the latter involves fundamental life changes in social roles, whereas the latter involves internal changes in cognitive structures or social knowledge. Of course, there are many obvious disparities between these different types of transitions. The present argument is that there is also a fundamental similarity, involving individual interpretive and epistemological features. In particular, different types of transitions are similar because one’s existing knowledge structures are no longer the best guides for effective behavior, and new guides need to be constructed. How or why the transition begins may not matter. The distinguishing characteristic is the realization of a new category or event with social regulatory implications. Whether the realization is impending motherhood or the importance of gender distinctions, it changes how individuals must deal with the world and motivates them to find out more about it. At this point, individuals proceed through the transition phases, represented by predictable shifts in orientation toward relevant information.

IV. Theoretical Background

The model of transition phases being proposed builds upon a number of previous conceptions of transition phenomena and the association between knowledge acquisition and information processing. Related conceptions can be found across diverse literatures, including cognitive development, social psychology, and sociology. The discussion of these ideas in this section is illustrative rather than comprehensive, with the intent of placing the present model in context.

A. COGNITIVE–DEVELOPMENTAL PERSPECTIVES

The literature on cognitive development has been concerned with a number of similar questions: What instigates transitions in levels of cognitive development? What are the mechanisms of change? How does level of knowledge or structure influence information processing? How does the individual move from less to more advanced knowledge states? Despite the large and diverse literature describing the acquisition of increasingly sophisticated rules, skills, or structures during development (e.g., Piaget, 1971; Siegler, 1981), there is little agreement on the mechanisms of change (Acredolo & O’Connor 1991; Nelson, 1986). The generality of the mechanisms proposed by Piaget (assimilation and accommodation) has been met with considerable dissatisfaction, yet only a few attempts to describe more specific mechanisms have been offered (Keil, 1984; Nelson, 1986). Thus, a clear answer to the question raised by Connell and Furman (1984) about the mechanisms of social transitions does not appear in the extensive literature on cognitive developmental change.

There is a point of agreement that is relevant, however. The need for change is instigated by incongruity or dissonance, termed disequilibrium by Piaget (1975/1985). Specifically, cognitive growth is promoted by the recognition of cognitive conflicts or contradictions, which leads to a state of uncertainty, instability, and possibly anxiety (Acredolo & O’Connor, 1991; Berlyne, 1970). Such a state may occur for a number of reasons. It may be generated either internally via the recognition of incompatible cognitions (Berlyne, 1970; Keil, 1984) or externally during social interaction (Doise & Mugny, 1984; Doise & Palmonari, 1984). The latter is particularly relevant to many types of life transitions because such shifts are likely to alter the probability of encountering people whose viewpoints differ from one’s own (Doise & Palmonari, 1984).

Internal cognitive conflict may also come in many different forms (Acredolo & O’Connor, 1991; Keil, 1984). Keil (1984), for example, describes several types of mechanisms that can initiate cognitive change and indicates how the exact nature of the mechanism depends upon the content of the knowledge it is influencing (e.g., acquisition of metaphor; change in grammatical structures). There appear to be sufficient similarities in the different mechanisms, however, to propose some general principles regarding uncertainty mechanisms and cognitive change. In some domains, uncertainty may take the form of a sense of inadequacy of present reasoning (e.g., that a particular grammatical form does not work or that existing assumptions about reality are contradicted). In other domains, it may take the form of a sense of possibility, as when knowledge of a particular domain has become sufficiently differentiated to reveal new relations to other domains or new meanings about the essential features of that domain. The interesting question is whether these same two principles may represent the mechanisms instigating non-cognitive transitions, such as major life transitions. Certainly, both the sense of inadequacy and the sense of possibility could stimulate the information gathering and mental activity (Acredolo & O’Connor, 1991) that characterize the first (Construction) phase of transitions, as we have defined it. In either case, the individual is motivated to resolve the uncertainty, and the resulting cognitive activity leads to new levels of cognitive understanding.

In addition to providing guidance about what initiates a transition, some recent research in the cognitive–developmental literature is relevant to considerations of mechanisms mediating change across transitions. Most notably, recent litera-
ture has pointed to the impact of knowledge base (e.g., familiarity; expertise) on a number of information-processing indices (Bedard & Chi, 1992). If, as argued above, transitions are instigated by attempts to resolve uncertainty by gathering information, then an individual's knowledge about the content involved may increase quite rapidly during the transition. Thus, changes that occur across a transition may be mediated, at least in part, by the influence of a changing base of knowledge on memory and inferential processes.

Considerable evidence supports the idea that knowledge base has wide-ranging effects, independent of age. Some research shows that level of knowledge affects ways of representing category-relevant information (Chi & Ceci, 1987; Keil, 1984). Keil (1984), for example, suggests that the characteristic-to-defining shift, in which children progress from an exemplar-based to a rule-based representation of a category (Vygotsky, 1934/1962), may be more related to level of knowledge about the category than to age-related structural change. There is now sufficient evidence that the shift occurs at different times for different concepts, and not at a particular age or stage. Other research shows that memory processes change as a direct function of knowledge base (Bjorklund, 1987; Schneider, 1990). Bjorklund (1987), for example, argues that increased knowledge results in more efficient processing of a particular content as a result of the frequency with which that content has been activated in the past and the number of features and inter-item connections associated with it. Because of the increased processing efficiency, a child's limited capacity can be allocated more to the execution of other cognitive operations, including deliberate and sophisticated memorizing strategies (Ornstein & Naus, 1985). Indeed, traditional age differences in memory may be eliminated when knowledge base is taken into account (Chi, 1977). Taken together, these findings suggest that regardless of age, as an individual proceeds across a transition, incoming information is more likely to be transformed at encoding in relation to the emerging semantic organization, and items that are part of that organization are more easily stored and accessed.

B. SOCIAL–COGNITIVE AND MOTIVATIONAL PERSPECTIVES

Several lines of research in the social cognition literature provide guidance about the kinds of cognitive–motivational changes likely to occur across phases of a transition. In this section, four such lines of research are discussed as illustrations: category accessibility, schematic processing, level of engagement with information as a function of epistemic goals, and type of information of interest as a function of epistemic goals. The first two research areas are particularly relevant to the information-processing variable in the model, whereas the last two are relevant primarily to level and focus of information seeking and secondarily to impact.

1. Category Accessibility

Considerable evidence suggests that the initial interpretation of information is affected by expectations or accessible schemata (Higgins & Bargh, 1987). If subjects are primed with a particular trait construct, even subliminally, they are likely to use that construct in interpreting subsequent information received in a different context (Bargh & Pietromonaco, 1982; Higgins, Rhores, & Jones, 1977). More relevant to the present model, one's current goals or needs can also increase the accessibility of particular constructs (Bruner, 1957; Higgins & King, 1981). Individual differences in construct accessibility (e.g., with respect to gender or particular-person characteristics) lead to a greater sensitivity to the presence of such information, regardless of whether or not that construct was initially primed in that context (Higgins, King, & Mavin, 1982). This literature would thus lead to the prediction that incoming information will be “seen” or interpreted in terms of constructs relevant to an ongoing transition, at least when the information is ambiguous. A woman expecting her first child, for example, may focus on the relationship between mothers and children when seeing movies or reading novels, even if those relationships are irrelevant to the development of the story.

2. Schematic Processing

Research based on the concept of the cognitive structure or schema (Bartlett, 1932; Bruner, 1951; Neisser, 1976) has generated a considerable amount of relevant research. In a manner similar to the ideas discussed above with respect to knowledge base in the developmental literature, research in social cognition has shown that highly developed knowledge structures (schemata) represent interpretive frameworks that influence how social information is perceived, encoded, and remembered (Higgins & Bargh, 1987; Markus & Zajone, 1985; Taylor & Crocker, 1981). Although there are a number of different schema models, they all agree that information relevant to existing schemata are more easily processed and remembered. There has been considerable debate, however, concerning the processing of schema-congruent versus incongruent information (cf., Alba & Hasher, 1983; Graesser, 1981; Hastie & Kumar, 1979). Information inconsistent with the schema may be filtered or ignored, leading to poorer memory, or it may be processed more extensively in order to resolve the discrepancy; evidence in support of both effects has been found (Higgins & Bargh, 1987).

Recently, suggestions for resolving this debate have been offered that have direct relevance to changes in information processing that might be anticipated.
across a transition. Specifically, schema-congruent processing would be expected to increase for more developed or stronger schemata (Fiske & Neuberg, 1990; Higgins & Bargh, 1987; Ruble & Stangor, 1986). Thus, one possible reason for discrepancies in findings across studies is that some studies examine the effects of expectations based on a well-established schema such as gender (Ruble & Stangor, 1986), whereas others examine the effects of short-term experimentally manipulated expectations (e.g., Hastie & Kumar, 1979). Because the former should represent stronger and more developed expectations than the latter, schema-congruent processing should be higher in the former than in the latter. Indeed, Higgins and Bargh (1987) suggest that many of the studies manipulating expectations might properly be considered to be studying impression (or schema) formation rather than impression testing. Thus, it may be suggested that memory processes shift as a function of the level of development of a schema from favoring schema-inconsistent to schema-consistent information, an idea of obvious importance for identifying changes in information processing across phases of a transition.

Several recent studies support this hypothesis. In a study that experimentally manipulated the “development” of a schema by providing greater or fewer instances of schema-relevant behavior, schema-congruent memory was found to be stronger for subjects with a more developed schema (Stangor & Ruble, 1989b). Schema-congruent processing also appears to be greater in older than in younger children with respect to a content (gender) that clearly develops with age (Stangor & Ruble, 1989a). Finally, a recent meta-analysis provides strong support for this hypothesis (Stangor & McMillan, 1992). Increases in both expectancy strength and age were associated with a tendency to recall expectancy-congruent information.

In order to consider how these findings might apply to an analysis of transitions, it is important to understand why information processing changes in relation to schema-strength development. So far, the focus on cognitive structures implies that such changes represent a relatively automatic and pervasive cognitive process by which a schema provides meaning to information to make it more comprehensible and to facilitate memory. Moreover, schematic processing is adaptive because it makes information processing more efficient, thereby freeing the individual to engage in more complex cognitive tasks. Thus, one set of mechanisms that account for schematic processing effects appears to be inherent to the functioning of the structure itself, so that irrelevant or inconsistent information is discounted or never “seen” or processed (Fiske & Taylor, 1991; Higgins & Bargh, 1987).

More motivational mechanisms may also be involved. There is considerable evidence that the tendency to engage in theory-based (schematic) versus data-based processing varies as a function of processing goals (Fiske & Neuberg, 1990; Higgins & Bargh, 1987). When people are highly motivated to be accu-
rate, for example, they are less likely to rely on previously formed categories or theories and instead will expend the effort to carefully process the data (Chaiken, 1980; Erber & Fiske, 1984). One possible reason for the differences in information processing observed for short-term versus well-formed expectancies is that an individual’s processing goals depend on the level of development of relevant schemata (Ruble, 1987; Stangor & Ruble, 1989a). During the initial stages of expectancy formation, individuals have relatively little knowledge and considerable uncertainty. Processing goals are thus likely to be more oriented toward accuracy, very much in an “effectance” or mastery–motivation sense, and individuals should engage in careful processing of inconsistent information in an attempt to reconcile it with the developing expectancy. In contrast, once expectations are well established, such effort is less justified because the uncertainty has been resolved. Some direct evidence for this latter contention was provided by Stangor and Ford (1992), using an information-seeking paradigm. Perceivers with stronger expectations showed an interest in avoiding exposure to expectancy-incongruent information.

In short, changes in knowledge representation across phases of a transition would be expected to change information processing for both cognitive (schematic processing) and motivational reasons. First, knowledge structures impose their own order on the perception and memory of incoming information so that once a structure is in place, consistent information is more easily processed and remembered. Second, as individuals acquire enough knowledge to form conclusions, goals shift from trying to resolve uncertainty to trying to confirm conclusions. Thus, processing information inconsistent with current expectations should decline across phases of a transition.

3. Level of Engagement with Information as a Function of Epistemic Goals

Motivational processes have been directly implicated in a related aspect of relevant social–cognitive research—how orientations toward information change in relation to one’s knowledge base and goals. One general conclusion that seems to hold across a variety of analyses is that the level of seeking and engagement with information changes as a function of level of certainty. For example, Festinger’s (1954) original statement of social comparison emphasized the concept of uncertainty—that people are motivated to compare themselves with others in order to resolve uncertainties about themselves. More generally, Trope (1983) has shown that uncertainty drives a search for diagnostic information, even if that information is likely to result in unflattering conclusions about one’s competence. In contrast, once a relatively certain conclusion is reached, diagnostic information search is reduced. In addition, several findings support dissonance-theory predictions that once a commitment to a particular point of
view has been made, active information seeking is reduced and nonsupportive information avoided (Frey, 1986). Similarly, a program of research on making and acting upon decisions shows that a predecision mind set is characterized by an open, impartial approach to information, whereas a postdecision mind set is more closed and biased toward an optimistic analysis of relevant information (Gollwitzer, 1986; Heckhausen & Gollwitzer, 1986). Also, research on confirmation biases suggests that a clear, relatively certain set of beliefs about oneself or others often leads to information seeking that is biased toward confirming those beliefs (Swann, 1986). Finally, as Aeberson (1986) suggests, “Beliefs are like possessions”; once one has grown comfortable with a set of ideas, as with an old lounging chair, one may be reluctant to try anything else. Such findings are directly pertinent to changes across transition phases because almost by definition, knowledge and certainty are relatively low in the initial phase but should both increase as the transition proceeds.

Most recent models dealing with the concept of uncertainty and its implications for orientations toward information portray the individual as an active seeker and constructor of meaning, strategically selecting information to maximize diagnostic value. Such a portrait is consistent with theories that depict human nature as intrinsically driven toward mastery of the environment (Bere, 1966; Deci & Ryan, 1985; White, 1959). Not surprisingly, then, the driving force underlying uncertainty effects are characterized by such terms as need for control and predictability, mastery, insufficient confidence, and need for closure. Four models of epistemic activity, oriented toward determining different types of social judgments, nicely illustrate this point.

Chaiken and her colleagues (Chaiken, Liberman, & Eagly, 1989; Maheswaran & Chaiken, 1991), for example, emphasize the principle of the sufficiency of judgmental confidence. They argue that the efficient information processor must balance the need to conserve processing energy (i.e., the idea of the cognitive miser; see Fiske, 1993) with the need for judgmental confidence. Thus, according to this model, changes in the confidence sufficiency threshold, rather than in level of confidence per se, are responsible for the well-documented finding that information is utilized more extensively and systematically when motivation is enhanced by making the judgment personally relevant or stressing the need for accuracy (e.g., Cacioppo, Petty, & Morris, 1983; Neuberg & Fiske, 1987). In other words, contextual increases in motivation raise the sufficiency threshold, and processing efforts must continue longer in order to reach it.

Kruglanski and his colleagues (1990; Kruglanski, Peri, & Zakai, 1991) argue that epistemic activity is a function of the need for closure. Conditions of complete uncertainty or ambiguity should promote epistemic “unfreezing” (enhanced information seeking and hypothesis generation). In contrast, the generation, or ready availability, of a plausible basis for judgment promotes epistemic “freezing” (a reduction in the generation of further hypotheses and the need for further information seeking). For example, Jamieson and Zanna (1989) showed that under time pressure (which promotes the need for closure), individuals were relatively more inclined to base judgments on existing stereotypes rather than on new information. Recently, Kruglanski et al. (1991) provided direct support for the model by manipulating both confidence and need for closure and by showing that individuals high in need for closure tended to search for information more when confidence was low than when it was high.

Tropie (1983; 1986) emphasizes predictability and control (utility value of information for making decisions about the future) in his model of epistemic activity with respect to achievement-related behavior. Complete and realistic self-knowledge allows individuals to form attainable goals, including withdrawal from activities for which they are ill-suited. An information search attempting to assess accurately one’s abilities improves chances of predicting which activity and degree of time expenditure will yield the highest expected utility. According to the model, the value of predecision information equals the resulting improvement in expected utility, much like a cost—benefit analysis, which is a function of the importance of the outcome and the uncertainty as to whether it will be achieved. To the extent that ability level is known, the value of diagnostic predecision information seeking declines relative to other possible goals, such as maintaining self-esteem.

Finally, Pittman and his colleagues (Pittman & D’Agostino, 1985; Pittman & Heller, 1987) argue that control motivation drives epistemic activity. Individuals who have been deprived of control spend greater effort in information gathering, prefer diagnostic information, and process it in a more careful and deliberate fashion than individuals who have not experienced a loss of control. In addition, information likely to elicit concerns about control, such as negative or unexpected information, also evokes a more extensive analysis. This basic idea is supported, as well, by other types of analyses suggesting that control motivation may underlie individual differences in need for cognition (Thompson, Chaiken & Hazlewood, 1993).

In brief, social-cognition theory and research suggests that level of engagement with information changes in relation to basic motives and needs that are likely to show important shifts across a transition, including confidence in one’s judgments, need for closure, adequacy of information for future decisions, and sense of control. Although the models deal with different content and emphases, they converge around similar themes. First, there are costs involved in gathering information and effortful processes, so that particular motivational contexts are required. Second, those motivational contexts involve subjective uncertainty, lack of confidence, and loss of control. Finally, the epistemic activity is reduced as subjective certainty, confidence, and control are regained, particularly given competing contexts (e.g., need for closure) and motives (self-enhancement). The argument with respect to the present phase model is that these motivational
processes change systematically across phases of a transition. They thus provide a basis for predicting that level of engagement with topic-relevant information will shift from high interest and careful, deliberate processing to reduced interest and less extensive processing.

4. Type of Information of Interest as a Function of Epistemic Goals

Different goals not only affect how actively information is sought and considered; they also affect what kind of information is of interest. Fazio (1979), for example, has shown that the nature of interest in others’ opinions changes in relation to the stage of formation of an attitude. In the early stages, our interest in others’ opinions is concerned with developing a conception of the object or issue in question. At a later time, the goal of information seeking changes to confirming the image that has been constructed (see also Olson, Ellis, & Zanna, 1983). Gollwitzer (1986) argues that the type of information of interest varies as a function of one’s particular “mind-set” associated with the phases of making or acting upon a decision. In the predecisional phase, a “deliberative” mind-set should lead individuals to be most interested in information concerned with the expected benefits (or costs) of an action decision; in the preactional phase, an “implemental” mind-set should enhance interest in information concerned with planning; and in the postactional phase, an “evaluative” mind-set should lead to an interest in the quality of the outcome. Trope and Thompson (1993) have demonstrated that people with well-developed expectancies or knowledge structures seek more extreme information, presumably because such inquiries are more diagnostic for them.

Several examples of different orientations toward information in relation to disparate goals may be found in the literature on achievement. A number of researchers have examined differences between accurate self-assessment as opposed to self-enhancement goals and their consequences for type of information sought and utilized (Ruble & Frey, 1991; Trope, 1986; Wood, 1989). The former goal, for example, might lead to an interest in choosing diagnostic tasks or selecting similar others or standard setters for social comparisons, whereas the latter goal might lead to an interest in selecting easy tasks or social comparisons with others who are worse off. Other researchers have examined how mastery or learning goals versus self-evaluation goals affect the selection and use of information (Butler, 1992; Dweck & Leggett, 1988; Nicholls, 1984; Veroff, 1969; Wood, 1989). The former goals are more likely to be concerned with temporal comparison indicating progress or information about optimal task procedures, whereas the latter goals are more likely to be concerned with comparison of outcomes with similar others. Recently, Ruble and Frey (1991) have proposed that such goals are temporally organized so that level of knowledge and experience with a particular skill determines which goals are paramount and thus what kinds of information are of greatest interest. To illustrate, individuals need to determine the key features and procedures of a skill by engaging in upward comparison (standard setting and observational learning) before engaging in similarity comparison, because they need to define the key parameters of the task before accurate competence assessment can be meaningful. Such temporal changes in goals may be directly applied to the Construction versus Consolidation phases of the present transition model. That is, initial goals to define the new category or event give way to goals of supporting the conclusions that have formed, and the type of information of interest is likely to change in relation to these different goals.

C. SUMMARY

There is substantial convergence across diverse literatures about the cognitive and motivational consequences of differences in what we assume to be two critical and inter-related features of transitions: (1) level of uncertainty and associated processes (loss of confidence and control); and (2) level of knowledge. Uncertainty is high at the beginning of a transition and subsequently declines, whereas the reverse is true for level of knowledge. Indeed, much of the cognitive-developmental literature suggests that some form of uncertainty instigates a transition. Although knowledge and uncertainty might be considered similar variables and are obviously related, they are often treated separately in the literature, in part because uncertainty and its associated processes (loss of control) have clear motivational qualities that level of knowledge does not.

What does this literature suggest about the cognitive and motivational variables included in the phase model of transitions? With respect to information seeking, research deriving from vastly different models and perspectives converge on a clear conclusion: Uncertainty elicits an active engagement with relevant information, but once uncertainty is resolved, active epistemic motivation declines. In Table 1, active information seeking is depicted at both Phase 1 and Phase 2 because uncertainty is high in both phases, though with respect to different issues and goals. What appears to change is the type of information of interest. A number of lines of research suggest that interest changes with time from definitional concerns (What are the characteristics associated with this category?) to confirmation or evaluation (Was it done correctly? How good was it?)

With respect to information processing, most researchers agree that increasing levels of knowledge lead to more efficient processing and certain associated biases in encoding and retrieval of information. An important point for the transition model is that such changes in knowledge and expertise (and corre-
sponding effects on processing) can occur at any age. In general, both the cognitive-developmental and soc. 1-cognitive literature suggests that memory is increasingly likely to favor information consistent with developing expectations and conclusions as the transition proceeds. In addition, assuming that the topic of a transition is personally significant to the individual, the literature on category accessibility would suggest that this topic will be used to interpret incoming information. Thus, as shown in Table 1, the transition model predicts that information will begin to be categorized in terms of the topic and that any information relevant to it will be better remembered than irrelevant information as soon as the transition begins.

Finally, impact variables are assumed to change in parallel with information seeking and processing. The exact nature of the individual’s choices, inferences, motivation, and attitude change depend on what information is sought and how it is processed. Moreover, changes in level of uncertainty across phases is associated with changing goals that should be reflected in affective and behavioral reactions. Need for closure and control, for example, should be paramount at Phase 2 as the individual is consolidating conclusions. Thus, the individual will be concerned with verifying conclusions by behaving correctly with reference to them. In addition, whether or not new information challenges current conclusions has affective implications, both because of changes in personal relevance and because the comfort or satisfaction of reaching closure may have to be relinquished.

V. Application to Social-Cognitive Transitions

I have argued that the present transition phase model may be a useful way to conceptualize certain kinds of social-cognitive developmental changes and their implications for behavior. Although externally imposed life transitions, such as becoming a parent or beginning junior high school, are obviously not the same as cognitive and social-cognitive transitions, there are some notable similarities that, if highlighted, may be of heuristic value to both literatures. In both cases, conflicts and uncertainties change an individual’s way of viewing the world, and different types of information become salient and important. The present proposal is that this change in orientation toward information proceeds in a predictable sequence, regardless of the reason for the initial discontinuity.

Here, this point will be illustrated in terms of three social-cognitive transitions: (1) the understanding of one’s identity as a male or female (with a focus on gender constancy), (2) the understanding of one’s (school-related) abilities, and (3) the understanding of individual differences in people’s characteristics (with a focus on stable, dispositional traits, such as helpfulness, meanness, competence).

VI. The Gender Transition

Even fairly brief observations of young children will often result in charming illustrations of their attempts to construct the meaning of gender categories. Consider the observations of Vivian Paley, a teacher of preschool and kindergarten children who records the things her children say and who keeps careful notes. Paley (1984) writes that kindergarten children search everywhere for clues to create clear and distinct conceptions of girls and boys. It does not seem to matter whether they match conventional gender stereotypes, only that there are clear and consistent differences. In one of her kindergarten classes, for example, boys hop to get their milk, whereas girls skip to the paper shelf. Boys clap out the rhythm of certain songs; girls sing louder. One day the teacher asks, “How would you feel if Goldilocks came to your house to play?” The first girl welcomes the prospect. The next eight respondents are girls, who also nod their approval. The first two boys in the circle also agree. Andrew can barely wait for his turn. “No way!” he yells. The boys jump in response. Paul and Jeremy laugh loudly. “She better not, Oh, no!” The first boy then waves his arms. “I changed my mind!”

Kohlberg (1966) initially proposed that such attempts to organize gender categories followed an important social-cognitive development, gender constancy, which he related to Piaget’s notion of conservation. This new understanding, which occurs at 4 to 6 years of age in most studies, involves the realization that one’s sex is constant across time, situation, and superficial changes such as hair length or type of clothing (see Stangor & Ruble, 1987, for a review). Gender constancy is measured by asking children a series of questions about their own sex or that of hypothetical other children under a variety of situations (e.g., “When you were little, were you a baby boy or a baby girl?”; “If Jack was wearing a dress, would he be a boy or a girl?”) (Slaby & Frey, 1975; Wehren & De Lisi, 1983). Prior to understanding gender constancy, when asked whether Jack, who is now wearing a dress, or is playing with dolls, is a girl or a boy, young children are likely to say he is a girl.

Although it is reasonably clear that knowledge of gender constancy occurs in a predictable developmental progression across cultures (De Lisi & Gallagher, 1991; Munroe, Shimmin, & Munroe, 1984), much as Kohlberg described, it is also quite clear that children engage in sex-typed behavior and have considerable knowledge of gender stereotypes long before they understand gender constancy (Huston, 1983). Thus, gender constancy does not seem to initiate children’s
organized representation of gender. Instead, the onset of the “gender transition” is marked by children’s recognition that gender is an important dimension in their immediate social world. Just as a pregnant woman needs to construct an image of what it means to be a mother, these children need to construct an image of this categorical distinction in gender. Nevertheless, we would argue that the attainment of gender constancy is an important transition phase (Stangor & Ruble, 1987). Knowledge that one’s gender is immutable affords a new power to gender categories. Rather than just being one of many dimensions of the social world to which children might pay attention, it takes precedence. In terms of the present model, it reflects the second (Consolidation) phase. Children not only know about it but they also have to get it right; they have to consolidate their knowledge and apply it to their behavior to make sure it is sex appropriate. Thus, we should expect to see a focus on information relevant to gender-appropriate behavior and a greater value given to such information. Studies of attention to same-sex models support this idea.

In a pioneering study of gender constancy, Slaby and Frey (1975) examined 3-5-year-old children’s attention to same-sex models shown on the right or left side of a movie screen. A man and woman were shown engaging in a number of activities (e.g., playing music, popping corn, drinking juice), and children’s point of fixation on the screen was observed. The data supported the hypothesis that attention to same-sex models would be greater for children who had attained gender constancy, though the differences were significant for boys only. Gender constant boys looked at male models more than preconstant boys, who looked at the two models an equal amount of time. Constant girls also looked at female models somewhat more, as expected, but not significantly.

Why boys only? Girls may be less motivated than boys to adopt sex-typed behavior because they encounter less strong norms—that is, broader definitions of sex appropriateness or weaker prohibitions. Consequently, gender constancy may be less of a transition phase for girls. In addition, there was an overall tendency for both sexes to look at male models somewhat more than half of the time. Perhaps there are competing motives for girls, pitting social power against same-sex modeling. This sex difference does not always occur, however. In the study described next, boys and girls showed a similar pattern.

Does the greater attention to same-sex models associated with constancy have any impact on behavior? In one study (Ruble, Balaban, & Cooper, 1981), 4-6-year-old children viewed a commercial in the middle of a cartoon; the commercial showed either two boys or two girls playing with an attractive toy pretended to be gender neutral (a movie viewer). Subsequently, the children had a chance to play with a set of toys, one of which was the same one they had seen in the commercial. The amount of time spent with this toy was observed from behind a one-way mirror. Only gender-constant children were differentially affected by the sex of the model. Consistent with predictions, gender-constant children seemed to avoid the toy when other-sex children had played with it, whereas pre--gender-constant children played with the toy regardless of whether boy or girl models were shown in the commercial. Because age was a covariate in these analyses, the differences are not a simple reflection of age.

Perceived sex appropriateness of the toy showed the same pattern. The children were asked, “Who would like this toy more, my brother or my sister?” Gender constant children responded in accordance with the information presented in the commercial, whereas pre--gender-constant children did not differentiate.

Finally, it is interesting that a standard measure of sex stereotyping showed no difference as a function of constancy. Both pre--gender-constant and constant children labeled toys in accordance with stereotypic labels. This pattern of results highlights the distinction across different phases of a gender transition. Once children realize the significance of gender categories, they begin to construct the meaning associated with gender, and may even develop quite sophisticated sets of gender stereotypes at a fairly young age. Moreover, differential experience with and reinforcement for same-sex activities may lead to sex differentiated behavior at quite a young age. In contrast, the Consolidation phase, as represented by gender constancy, seems associated with an active, self-initiated focus on information regarding gender-appropriate activities, and self, rather than other, regulation. To illustrate, consider the actions of one of the subjects in the study: One preconstant boy labeled the dish set female, but then asked to play with it. In terms of the model, the impact of gender information was low; it did not dictate how he himself should be behaving, as it would at the Consolidation phase. The label was not viewed as a prohibition against an otherwise attractive behavior—a point discussed later with respect to a subsequent study.

I should note at this point that the conclusion about the effects of gender constancy being proposed here is controversial. Many studies have shown no association between constancy and toy preference or memory for gender-related information (Bussey & Bandura, 1992; Levy & Carter, 1989; Marcus & Overton, 1978). These findings would seem to contradict the present hypothesis that constancy is associated with changes in orientations toward gender information. How do we explain these apparent discrepancies?

One clue comes from a clever study by Eaton, Von Bargen, and Keats (1981) who varied two dimensions of toy choice. Two identical boxes were presented to young children; they were told that each box contained a toy and were asked to indicate which one they would like of the following pairs: (1) Boys play with this toy; girls play with this toy; (2) Kids run with this toy; kids sit with this toy. After determining the child’s preference for running or sitting, the preferred mode was placed in conflict with the child’s sex (e.g., girls run with this toy; boys sit with this toy).

The differential interest of gender-constant children was shown clearly when
the two dimensions were in conflict. Constant children overwhelmingly selected on the basis of gender; preconstant children used the other dimension about equally often. When there was no conflict, both high and low constant children selected the sex-appropriate toy. These data suggest why some studies fail to show a same-sex bias associated with gender constancy. That is, ideas about salience of gender information can be tested only when there are conflicting dimensions.

We have recently replicated these findings in a study that covaried age and thereby clearly linked the differential choice directly to gender constancy (Stangor & Ruble, 1989a). When gender appropriateness was the only dimension, all of the children chose the toy associated with their gender; when the preferred activity conflicted with the gender cue, gender-constant children were more likely to select on the basis of gender than were non-constant children, controlling for age.

These data raise a more general statement of what we have labeled the “conflict” hypothesis in a recent study (Frey & Ruble, 1992). The idea is that it is only when children understand gender constancy that they become willing to incorporate negative dimensions of gender into their choices and behaviors—that in consolidating a gender identity for themselves, it is more important to be “correct” than to select the more attractive option. To examine this hypothesis, we varied toy attractiveness and sex “appropriateness.”

As part of a cartoon show, children saw a program host (Bonzo the Clown) interviewing two boys and two girls about their toy preference. In the conflict condition, the less attractive toy was preferred by same-sex models. In the no-conflict condition, the two toys were equal in attractiveness. We predicted, first, that all children would play with the same-sex preferred toy in the no-conflict condition—that is, there would be no constancy effect. Second, in the conflict condition, we predicted that constant children would play with the same-sex preferred unattractive toy, but that preconstant children would not. These predictions were supported, but once again for boys only. In the conflict condition, constant boys played with the same-sex but unattractive toy much longer than did preconstant boys, whereas in the no-conflict condition, both constant and preconstant boys showed considerable interest in the same-sex toy.

Taken together, these studies suggest that closer attention to the processes assumed to link gender-related cognitions to behaviors is needed. One reason for inconsistent findings across studies is that children may engage in same-sex play for many reasons. They may exhibit same-sex preferences with little thought because of habits established through early reinforcement histories. Only when a same-sex preference conflicts with other attractive features has a true choice been made that should show a relation to changing knowledge.

One other possible reason for inconsistent findings concerns the age of the subjects. Some studies failing to show a relation between gender constancy and responsiveness to gender information have used a very young sample (mean age of approximately 3.5 years). Why should this matter? There are a number of indications that gender constancy shows a curvilinear (U- or J-shaped) function with age, so that 3- or 4-year-old may have higher scores than children one year older (De Lisi & Gallagher, 1991; Emmerich, 1982; Gouze & Nadelman, 1980; Wehren & De Lisi, 1983). This decrease in constancy appears to be linked to the kind of explanation children offered for their responses. Wehren and De Lisi (1983) found that 5-year-olds tended to explain their errors in making judgments of constancy in terms of categorical norms (e.g., “If Jack wore lipstick, Jack would be a girl; boys can’t wear lipstick”). It may be that children need to resolve this apparent conflict between sex identity and social-role norms before achieving a true understanding of constancy.

Thus, studies examining associations with constancy among very young children may be combining two very different types of constancy, only one of which may be related to an active choice on the basis of gender. If so, the interpretation of failures to find associations between gender constancy and behavior needs to be reconsidered. A related possibility is that some attunements in the acquisition of constancy are more critical than others. Martin and Little (1990), for example, show that beliefs in the stability of gender over time relates more closely to various indices of impact than do beliefs in the consistency of gender across superficial transformations, such as a boy wearing a dress (see also Eaton et al., 1981). Such data are important for understanding differences across studies in the cognitive and motivational consequences of attaining gender constancy.

In brief, the adoption of sex-role norms is a kind of transition that occurs between 3 and 7, which is perhaps somewhat more powerful for the choices of boys than girls at that age, though perhaps not in the long run. The four studies described above suggest that the attainment of gender constancy is associated with changes in the focus of information-seeking and impact of gender information. According to the phase model being proposed here, these changes correspond to a shift across the Construction and Consolidation phases. Preconstant children (at the ages included in these studies) are in the Construction phase in the sense that they have developed extensive knowledge of gender categories. The consolidation of that knowledge associated with constancy, however, leads them to make clear and consistent use of that information. Specifically, these four studies show systematic differences associated with level of constancy in attention to same-sex models and self-regulation in terms of those norms. High constant children (Phase 2) look more at same-sex models (first study), play more with the toy that same-sex models advocate (second study), and are more responsive to gender information relative to other kinds of information when selecting play activities (last two studies) than low-constant children (Phase 1).

What about the changes in information-processing suggested by the model? Although a few studies have tested the hypothesis that gender constancy is
associated with gender memory, there has been no support for this idea (Carter, 1987; Levy & Carter, 1989). One possible reason for these null findings is that the nature of changes in cognitive-motivational orientations across phases is associated with different aspects of knowledge representation associated with the phase. As discussed earlier with respect to general principles of schematic processing, changes in knowledge may affect both processing efficiency and motivation to process. Understanding that gender is invariant may change the personal relevance of same-sex information, with concomitant changes in motivational orientations toward gender (i.e., information-seeking focus and impact). In contrast, the amount of knowledge may affect the case with which gender stereotypic information is stored and recalled. Stangor and Ruble (1989a) provided support for this hypothesis. As noted above, gender constancy was associated with an impact variable (selecting a same-sex toy, even when it was less attractive), but it was not associated with memory for gender-consistent information. Instead, such memory increased with age, suggesting a closer association to the growth of knowledge about gender, rather than to its personal relevance, per se. Thus, these data suggest that a possible reason for discrepant findings across studies is that different aspects of gender knowledge representation differentially influence particular types of dependent variables. Longitudinal research is needed to link such differences directly to changes in forms of representation (i.e., gender knowledge vs. constancy).

Finally, Phase 3, Integration, should be characterized by reduced interest in gender-related information, and greater flexibility in its impact. There are no data directly testing this hypothesis, but some findings provide indirect support. Several studies suggest that the application of gender stereotypes during the early years of school becomes much more flexible by middle to late elementary school (see Ruble, 1988, for a review). Although measures of stereotyping that require a forced choice between males and females show an increase in stereotyping with age, measures that allow for a “both or neither” response often show a decrease in stereotyping after approximately 5 to 7 years of age (Signorella, Bigler, & Liben, 1993; Signorella & Liben, 1985). This pattern of results suggests that although stereotypic knowledge increases, older children may apply this knowledge more flexibly or attach less importance to it. Findings from interview studies lead to a similar conclusion (Carter & Patterson, 1982; Damon, 1979; Stoddart & Turiel, 1985). For example, in the Stoddart and Turiel study, children showed awareness of sex-role violations, such as men wearing dresses, by age 5, and from 5 to 7, they were quite persistent that such acts were wrong. After this age, however, children began to make allowance for individual flexibility in the face of sex-role conventions, at least until adolescence. A similar curvilinear age trend was found in a study of person perception (Berndt & Heller, 1986). When predicting an actor’s future behavior, subjects in third grade paid more attention to gender stereotypes than did those in kindergarten, sixth grade, or college.

Martin (1989) also found that older children were more flexible in their use of gender as a cue for making predictions, though the exact age at which flexibility changed was difficult to assess because the 4- to 10-year-old children were combined into younger (4–6) and older (7–10) groups.

Phase 3 should also be characterized by individual differences in information processing and impact. The large literature on gender “schemaicity” (e.g., Bem, 1981; Crane & Markus, 1982) in adults may be construed as representing Phase 3 responding, but there is little evidence about when such individual differences emerge. A series of studies by Liben, Signorella, and their colleagues (see Liben & Signorella, 1987, for a review) indicates that highly stereotyped children recall more gender-consistent pictures than do less stereotyped children, but researchers have not examined when this individual difference first emerges. Once again, longitudinal research is needed to examine these implications of changes across phase in knowledge acquisition and representation.

Table III summarizes the combination of predictions and findings for gender transitions in terms of the phase model. The changes in level and type of knowledge during early childhood are well demonstrated (Martin, Wood, & Little, 1990; Ruble, 1988). Indeed, Martin et al.’s (1990) sophisticated study of the components of stereotype development concluded that they develop in a series of stages that are quite compatible with the present analysis. During Stage 1 (2–4 years), children learn what kinds of things are associated with each sex (e.g., boys play with cars). During Stage 2 (4–6 years), children develop more complex associations for information relevant to their own sex. During subsequent years, children’s knowledge expands to incorporate information relevant to the other sex.

The four studies described in detail above primarily illustrate the link between differences in knowledge (preconstant to constant) and two of the cognitive-motivational variables shown in Table III: Focus of information-seeking and application. The remaining cells of the table represent predictions based on age-difference findings in the literature, such as memory for gender-consistent information (Stangor & Ruble, 1989a), categorization (Martin, 1989; Serbin & Sprafkin, 1986), or stereotype flexibility (Signorella et al., 1992), but specific associations to different levels of knowledge remain to be demonstrated.

VII. The Transition in the Meaning of Ability

Another kind of social–cognitive transition concerns children’s increasing understanding of personal competence. When children first enter school, at around age 5, they learn that there is a whole new world to understand. According to the current phase model, this social-role transition, just like all other
transitions, should be accompanied by a heightened interest in information about this new system. Indeed, in two studies, we have shown that children exhibit the most extensive overt discussion about abilities and relative performance in the first year or two of school (kindergarten and first grade), but then such open discussion declines (Frey & Ruble, 1985; Pomerantz, Ruble, Frey, & Greulich, 1993). Moreover, young children are more likely to perceive such discussion in terms of general interest, rather than as indicative of performance assessment.

According to the present argument, the young children’s behavior reflects an open search for information about procedures and what is important in the classroom environment, unencumbered at this time by concerns with demonstrating competence or coming to a particular conclusion about school. In Kruglanski’s (1990) terms, they are oriented toward nonspecific, rather than specific closure. Once they have the information they need, this kind of information search should decline. There are alternative reasons for this decline, however. As children progress through school, they learn that it is not all fun and games—that significant others care about task performance and grades. They also learn that their grades and classroom standing are relatively stable, reflecting a general level of ability at tasks like reading and math. This realization is important because it changes the significance of day-to-day performance in school. Such performances are now indicative of general ability, with implications for future performance and opportunities, as well as for regard by significant others. Thus, the decline in overt exchanges about performance may reflect the increased sensitivity of the information. Indeed, this decline was associated with a measure of children’s awareness of ability as a trait in the Frey at. l Ruble (1985) study. Children who referred to general ability as a reason to select a particular peer when seeking assistance were less likely to engage in overt performance statements.

This new understanding of ability represents a dramatic change that may be viewed as corresponding to the shift from Phase 1 to Phase 2 and would be predicted to affect orientations toward information in the ways shown in Table I. Like gender, it represents a realization that not only is competence a characteristic that is important in the present social world but it is also a meaningful and stable aspect of oneself that has a number of significant implications for one’s desires and goals. Thus, it now becomes crucial not only to understand how it is represented and evaluated but also to assess oneself.

Although the drop in overt exchanges may appear to contradict our suggestions of continued high information seeking at Phase 2, there is evidence that the nature and method of information seeking are changing instead. That is, our classroom observational studies suggest that at these ages, children begin to seek ability-assessment information through a more subtle means—asking for information about peer progress (Frey & Ruble, 1985; Pomerantz et al., 1993). In a public setting, this is the self-assessment method of choice because the information can be obtained without necessarily revealing one’s own standing, thereby protecting the self-esteem of both oneself and others (Brickman & Bulman, 1977). Subsequent interviews indicate, further, that at these ages, children increasingly refer to social comparison as a reason for seeking such information. Moreover, references to social comparison during the first year of a 3-year longitudinal study do predict actual assessment behaviors in the classroom, but only in subsequent years (Pomerantz et al., 1993). One possible reason for this

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### Table III

<table>
<thead>
<tr>
<th>Variable</th>
<th>Phase 1 (Construction)</th>
<th>Phase 2 (Consolidation)</th>
<th>Phase 3 (Integration)</th>
</tr>
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<tr>
<td>Representation</td>
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<td>Level of knowledge</td>
<td>Incomplete, often</td>
<td>Extensive knowledge</td>
<td>Stereotypic knowledge</td>
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<td>of stereotypes</td>
<td>near asymptote</td>
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<td>Type of knowledge</td>
<td>Specific behaviors</td>
<td>Constancy of gender,</td>
<td>Individual differences</td>
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<td>and objects</td>
<td>roles and traits</td>
<td>in gender- or self-</td>
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<td></td>
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<td>Information seeking</td>
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<td>knowledge</td>
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<td>Gender primary basis</td>
<td>Individual differences</td>
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<td>Memory</td>
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<td>Recall better for</td>
<td>Individual differences</td>
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<td>Impact</td>
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<td>Little reaction to</td>
<td>Inflexible application</td>
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<td>Application</td>
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<tr>
<td></td>
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<td>differences</td>
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lag is that it may take time to figure out how to get the information in a socially acceptable way once one has decided that such information is necessary or, in other words, once this transition phase has begun.

There are a number of other indications that this is an important time of transition. First, there are age differences in self-evaluative processes and outcomes that correspond to the ages at which this shift occurs. For example, children older than 7 years of age are more likely to utilize social-comparison information when evaluating their ability (Ruble, 1987; Ruble & Frey, 1991). These results do not imply that social comparison is unfamiliar to young children, however. In a series of elegant studies, Butler (1989a; 1989b; 1990) has shown that younger and older children (i.e., before or after this shift) engage in social comparison in the service of different goals. Specifically, younger children are more likely to seek information relevant to mastering the task, whereas older children are more likely to seek information relevant to competence assessment, consistent with our portrayal of the shift from the Construction to the Consolidation phase. Interestingly, recent data suggest that these different concerns may lead younger and older children to show different forms of evaluative biases (Ruble, Eisenberg, & Higgins, in press). Younger children were less likely to incorporate failure information when evaluating their own specific performance than when evaluating another, whereas older children showed this self-other difference for the utilization of failure information for evaluations of general ability.

Second, measures of conceptions of ability or stable traits, more generally, have been associated with differences in the focus of information seeking or the impact of evaluative information. Ruble and Flett (1988) reported that perceiving ability as constant was associated with greater interest in social comparison, especially among older children. Rhodes, Jones, and Wade (1988) showed that 7- to 8-year-old children who perceived behaviors in stable terms were more likely to show a learned helplessness response to failure than children who did not perceive such behavioral stability. Similarly, Miller (1985) reported that maladaptive responses to failure feedback among second- and sixth-graders occurred only for children with conceptions of ability as capacity, most of whom were sixth-graders. Thus, taken together, these studies suggest that this shift in the meaning of competence as a stable trait is associated with an increased interest in self-evaluative information, with a particular focus on the form that would be most relevant in most classroom settings (i.e., social comparison). Moreover, it appears to be related to a greater impact of such evaluative feedback on subsequent choices and experiences. Indeed, Benenson and Dweck (1986) have shown that as references to trait explanations of performance increase with grade, positive self-evaluations decline, suggesting that the two events are likely to be related.

Recent analyses of our longitudinal data have provided more direct evidence of this association, indicating further the significance of this period of transition. Our own previous research (Frey & Ruble, 1987; Parsons & Ruble, 1977), as well as that of a number of others (see Stipek & Maclver, 1989, for a review) have shown this decline in positive self-evaluations across the first several years of school. What accounts for it? A number of hypotheses have been proposed, including changes in cognitive processing abilities and widespread changes in the educational environment that occur as children progress through elementary school. Exactly what these increasingly pessimistic self-evaluations represent, however, has to date remained a mystery.

One of the problems with the data base presently available is the lack of longitudinal evidence. In order to understand the cause of such changes, it is important to pinpoint when they occur. Like the hypothesis of Benenson and Dweck (1986), one of our own hypotheses has been that this drop is related to changes in perceptions of the nature of ability as a trait at this age—that current performance can be used to predict behavior across time and situation. This realization is important because it implies that poor performance in school can no longer be dismissed as a momentary event with no future implications or to temporary lack of effort that can be easily remedied. The unrealistic high self-perceptions of young children, then, may exist because negative feedback in school or failure experiences can be readily dismissed as irrelevant to obtaining desired outcomes in the future. Thus, we would predict that as children recognize the stable nature of school-related skills, their perceptions of their own competence must be assessed. The conclusions drawn during this Phase 2 assessment process depend on the nature of the information available at this time. Because in school relatively few children are at the top of their class, what this implies is that ratings of competence should decline. This would mean that we would expect to see a sharp decline in self-ratings sometime between 2nd and 4th grades, rather than the gradual decline implied by most previous cross-sectional studies. Moreover, one might expect this realization to be depressing for children who perceive their competence as relatively low. Thus, we predicted further that, only among children who perceive ability as constant, a decline in self-ratings of competence should be associated with increased depressive affect.

These predictions were examined as part of our longitudinal research employing a cross-sequential design (Ruble, Pomeranz, Frey, & Greulich, 1993). The children were initially in Grades K, 1, and 2, and they were followed for three years. Consistent with previous research, children's self-perceptions of cognitive competence (as measured by a slightly modified version of the cognitive subscale of the Harter, 1982, Perceived Competence scale for children) declined over time and with increasing grade. This decline was particularly marked after second grade, as predicted.

Ability constancy was assessed using a revised version of the ability-constancy scale described by Ruble and Flett (1988). This measure is based on measures of
gender constancy and asks children about another’s reading and math ability over time (e.g., whether a child who is very good in reading now will be very good in two years) and over situation (e.g., whether a child who is good in addition will be good in subtraction). As predicted, changes in ability-constancy scores corresponded to the timing of the decline in self-ratings, notably in beginning to increase after second grade. In order to examine the relation between these two developmental changes, we conducted a hierarchical regression analysis predicting change in perceived competence from change in perceived ability constancy. As expected, an increase in perceiving ability as constant predicted the decline between the second and third grades, but for girls in the second-grade cohort only. Although the reasons for this gender difference are not yet clear, we have speculated elsewhere (Rubie, Greulich, Pomerantz & Gochberg, in press) that girls may receive greater pressure to do well in elementary school and are thus more attentive to performance feedback. Several studies suggest that females at various ages are more responsive to failure feedback (Parsons & Ruble, 1977; Roberts, 1991), and more sensitive than boys to situations that emphasize competence (Butler, 1992).

Finally, we examined the relation between perceived ability constancy and the emergence of depressive affect in school-aged children in a separate longitudinal sample (Gochberg, Ruble, & Higgins, 1992). Not surprisingly, children who evaluated themselves as lower in cognitive competence (again using a modified version of the Harter scale) reported more depressive affect. More importantly, this effect was qualified by perceived ability constancy. As scores on the measure increased, the relation between perceived incompetence and depressive affect increased. Thus, not only might the emergence of ability constancy lead to a decline in perceived academic competence, but for those who retain a relatively strong belief that ability remains stable across time and situation, concluding that they are low in ability is particularly depressing.

Taken together, these data suggest important shifts in the information-seeking focus and impact of performance information across Phases 1 and 2. There appear to be differences in the type of information sought and in reactions to evaluative feedback corresponding to the perception of ability constancy. What happens at Phase 3? According to the model, we should see a reduced emphasis on seeking information relevant to competence assessment and evidence of individual differences in achievement-related goals. One study of age differences in information-seeking behavior in children reports some data consistent with this hypothesis (Ruble & Flett, 1988). When given a chance to evaluate their performance on a math-related task, high-ability children showed an increase between second and sixth grades in relative interest in mastery-oriented versus self-assessment-oriented (social-comparison) information, whereas low-ability children maintained a relative preference for assessment-oriented information across ages. One interpretation is that high-ability sixth-graders have reached a satisfactory conclusion about their abilities and can now focus on task-relevant goals (Phase 3 concerns), whereas low-ability children are not yet convinced that they have reached a conclusion about their level of math ability. Indeed, high-ability children were more certain of their ability level than were low ability children.

With respect to individual differences, there is a large literature showing variations in adults’ and older children’s interest in and responsibility to performance-related information. As discussed earlier, individuals differ in the extent to which they emphasize learning versus self-evaluation goals (Dweck & Leggett, 1988; Nicholls, 1984), and these differences influence the impact of performance feedback on affect and subsequent task motivation. Whether such differences can be shown to emerge from the outcomes of Phase 2 conclusions is a question that must await further research.

VIII. The Transition in Perceptions of People’s Characteristics

A third kind of social–cognitive transition concerns changes in children’s perceptions of people’s characteristics. These changes are related to those discussed above with respect to ability constancy, but they have implications for children’s interpersonal interactions rather than achievement-related motivation and self-esteem. Phase 1 is marked by children’s awareness that there are individual differences in people’s characteristics, a kind of initial implicit personality theory involving types of people. The beginning of this transition is more difficult to identify than the others because it does not have a clear marker, such as the entry to school. In addition, there has been little research on the origins of children’s awareness of individual differences. It is likely to depend upon how early children have regular experiences with multiple peers, allowing the awareness of differences (Higgins & Wells, 1986). Certainly by kindergarten, however, children exhibit an interest in people’s characteristics. In her book Bad Guys Don’t Have Birthdays, Paley (1988) reports, for example, that preschool and kindergarten children are obsessed with differences between “good guys” and “bad guys,” and recent research by Dweck (1991) indicates that this is a critical distinction for young children. Informal observations suggest as well that children of this age exhibit considerable interest in a newcomer’s age, number of siblings, favorite toys, and other “critical” items of identification.

The significance of these changes as a period of transition becomes more obvious at Phase 2. Children’s expanding experiences with peer interaction, coupled with cognitive developmental advancements, lead them to view people as having stable, dispositional characteristics, allowing for predictability over time (Rholes, Newman, & Ruble, 1990). This change is important because once
children realize that behaviors are invariably linked to individuals, there is a compelling reason to try to organize and understand the characteristics of others. Such an understanding should allow for predicting another's behavior in the future, thereby promoting appropriate choices of future playmates and facilitating a smooth interaction. Like other transitions, then, Consolidation is the phase when this general awareness of others' characteristics becomes personally relevant. Thus, we would expect to see some of the same changes in orientation toward social information that mark the shift to consolidation in other transitions, such as a focus on particular characteristics and a rigid adherence to the rule that people's behaviors reflect underlying, stable traits.

There is considerable evidence that in our culture, children's awareness of stable, dispositional characteristics emerges between 7 and 9 years of age. Children younger than this age tend to focus on concrete, physical aspects of people (e.g., he has dark hair) instead of the more psychological and predictively useful aspects mentioned by older children and adults (e.g., she is very friendly). Such trends are shown quite clearly in free-description studies, such as the pioneering work of Livesley and Bromley (1973). They showed that the proportion of references to central characteristics (e.g., personality) relative to peripheral (e.g., appearance) increases dramatically with age until 8 years, at which point the proportion is about 50%, where it remains through adolescence.

This social-cognitive change is due not just to verbal skills. A number of studies using forced choice selections or rating scales, not relying on verbal production, have now shown that young children typically do not make predictions about an individual's behavior in a new situation on the basis of inferences about enduring, underlying characteristics (see Rholes et al., 1990, for a review). Our conclusion is that young children do not view people's behaviors as emanating from an internal force that would lead them to do the same thing in other circumstances.

How does this change in social knowledge affect cognitive–motivational orientations toward peers? One prediction is that it would affect the focus of information search upon meeting a new peer. That is, a shift from Phase 1 to Phase 2 would be accompanied by an increased interest in gathering information relevant to predicting behavior in future situations. Camhy and Ruble (in press) looked at this issue directly. Subjects were ninety-six 7–8-year-olds, who were high rather than low on understanding stable, dispositional concepts (SDC). The measure of SDC consisted of a set of items in which children were asked to make behavioral predictions on the basis of previous dispositional-relevant behaviors—for example, whether a boy was timid in one situation (climbing a tree) would be timid in another (entering a spooky house).

The main dependent measure of the study involved information seeking relevant to getting to know a new child. The subjects had the chance to select possible questions to ask someone they might meet. These questions were drawn from pilot testing involving actual interactions of 7- to 8-year-old children, and questions roughly corresponding to Livesley and Bromley's (1973) central–peripheral distinction were selected. To illustrate, a peripheral question was, "How do you get to school?" whereas a central question was, "Do you like to play tricks?"

There was also a manipulation of expected interaction. In one condition, children were led to think that meeting another child was likely. These children were told that there might be a visitor to the school and that they should think of questions they might like to ask him or her. In a second condition, an instrumental component was added to expected interaction. In this condition, children were led to think not only that it was likely they would meet another child but also that they would have a chance to select the target as a possible partner for some games. In the third condition, children expected no interaction.

It was predicted that expected interaction would heighten the need to know as much about the other as possible, that is, that it would lead children to focus more on disposition rather than on peripheral information, at least for children high in SDC. This prediction was supported, though only for the instrumental expectation condition. High SDC children who expected to be making decisions based on their knowledge of the other selected relatively fewer peripheral (and more central) questions than did low SDC children.

In a conceptual replication, the dependent measure consisted of the actual questions that children asked of another during a free play situation. Only the instrumental expectation condition was compared to the no expectation condition. Although the type of question asked was not affected by the independent variables, as in the first study, the results showed that high SDC children who expected to make decisions about the target's suitability as a partner for different games asked more questions overall than did low SDC children. Thus, as in the previous study, only high SDC children were affected by the expectation manipulation, though in a somewhat different way. In retrospect, it is probably not surprising that they did not show a preference for disposition-related questions. In an actual interaction with a new child, it would seem to violate social norms to ask personal questions prior to exchanging certain basic information about background and interests.

Thus, taken together, the results of these two studies suggest that a variation in person perception from peripheral to stable, dispositional is associated with differences in the focus of information seeking corresponding to the first two phases of the transition model. Understanding stable, dispositional characteristics appears to be related to greater interest in information relevant to future interactions, although the exact behavioral manifestation of this motivation appears to depend on the constraints inherent in the social context.

A few other studies are consistent with the predicted cognitive–motivational changes, though not directly related to a change in social knowledge. Graziano, Brody, and Bernstein (1980) showed that third-grade children were more likely than first-grade children to attempt to placate a potentially aggressive peer by
providing them tokens that could be exchanged for prizes when they expected future interaction with that peer. In contrast, there were no differences across age in token distribution to an aggressive peer when no future interaction was expected. These findings suggest that increasing social knowledge about peers may result in more strategic orientations toward them. Given previous findings of age differences in perceptions of stable dispositions in others, it is reasonable to assume that the older children expected the aggressive child to behave aggressively toward themselves in the future interaction and were attempting to strategically influence the nature of that interaction.

Findings from some of our research supports the idea that there is an increase in strategic orientations at the ages that children typically begin to show an understanding of dispositional characteristics. In one study (Feldman & Ruble, 1988), children at two age levels (5–6 years and 9–10 years) watched videotapes of different target children portraying behaviors relevant to some games that would be played subsequently. Older children were more likely than younger children to choose partners who had demonstrated game-relevant skills, especially when they anticipated future interaction with the target. In contrast, younger children consistently chose partners based on their likability even though they exhibited an awareness of which choices would be personally advantageous. Thus, the bases of interpersonal choices appeared to shift across this age range, with younger children making decisions more on the basis of immediate affective reactions, and older children being more influenced by future instrumental considerations.

A recent study reported by Thompson, Boggiano, Costanzo, Matter, and Ruble (1993) provided additional information about the processes underlying these age differences. The procedure was basically the same as that used by Feldman and Ruble (1988), with one major exception. Children were provided with either an affective or descriptive encoding focus. Before seeing the videos, children were told to focus either on how the targets made them feel or how they would describe the targets to someone who did not know them. It was reasoned that if older children’s belief in dispositional stability underlies their strategic, instrumental orientations toward interpersonal choices, then older but not younger children would be more likely to respond strategically when instructed to form an impression of the targets’ personalities. In addition, we examined the prediction that children would make more instrumental choices when they expected consistency in the targets’ behavior. As expected, older children made more strategically “correct” partner choices than did younger children, and only in the descriptive-focus condition. Moreover, a measure of the tendency to see the target’s behavior as relevant to predicting subsequent behavior appeared to mediate these effects.

Taken together, these various findings suggest that important changes in children’s orientations toward peers accompany the transition in social knowledge about individual characteristics that occurs between 7 and 9 years of age. Once children perceive others as possessing stable dispositional characteristics, such as abilities at games, gathering information about them promotes future predictability and control. Thus, attention to such characteristics is personally useful (Phase 2) when forming impressions of a newcomer and in making interpersonal choices.

Other changes in cognitive–motivational orientation that should be associated with shifts in social knowledge are the salience of dispositional characteristics in others and the rigidity with which they are inferred. One should expect to see a curvilinear pattern across age, with dispositional characteristics most salient and most rigidly employed at Phase 2, when an image of others as possessing stable individual differences is consolidated, after 8 to 9 years of age. Two studies report findings consistent with this hypothesis (Josephson, 1977; Newman, 1991). Children at this age were less likely than either younger children or adults to consider the possibility that the behavioral implications of an inferred trait could change (e.g., that a generous individual could behave in a stingy manner). In addition, Newman (1991) found that 8–9-year-old children were more likely than adults to infer traits spontaneously by using a reaction-time paradigm. Taken together, these findings are consistent with the shifts in information processing and impact proposed to occur between Phases 2 and 3. The latter, integration, phase should be characterized by a decreased likelihood of interpreting novel information in terms of trait constructs and an increased flexibility in the application of them. Instead, there should be an increased recognition that dispositional stabilities may be qualified by situational constraints (Wright & Mischel, 1988).

In addition, individual differences in beliefs about trait constancy (Dweck & Leggett, 1988) or in strategic versus affective orientations toward relationships (e.g., exchange vs. communal orientations, Clark & Mills, 1979) may become evident at this phase. One interesting issue about the shift from Phase 2 to Phase 3 concerns the nature of the experiences at Phase 2 that give rise to individual differences at Phase 3. A question we are addressing in our current research, for example, is whether parental emphasis on instrumental aspects of interactions at the time children become aware of behavioral stabilities leads subsequently to individual differences related to exchange versus communal orientations.

IX. Implications of the Phase Model

A. IMPLICATIONS FOR COMMON TRANSITION PHENOMENA

How might the present analysis explain some well-known discontinuities and disruptions occurring during two common transitions that were described at the beginning of this chapter? First, consider the well-documented decline in marital satisfaction that accompanies the birth of a first child. According to the present
analysis, pregnancy involves Construction and Consolidation—that is, expectations about what it will be like to be a family are constructed and new conclusions are formed. Many women expect that these new family responsibilities will be shared, that the husband will contribute substantially to the housework and child care. Generally, the model would predict that expectancy-confirmation processes would operate, leading to a perceived reality that matches the expectation. For many families, however, postpartum reality is too discrepant from expectations of shared responsibilities, leading to a sense of violated expectations (Belsky, 1985; Ruble, et al., 1988). Our research suggests that a decline in marital satisfaction is most pronounced for the women who experience the greatest expectancy violation or for whom confirmation of expectations of sharing are particularly important (Hackel & Ruble, 1992). This is one way, then, that changes in orientations toward information during a period of transition may lead to the disruptions often observed to follow. Information available during the early phases of the transition may lead to expectations that are not supported by the reality of the subsequent phases.

A second illustration concerns the drop in positive self-perceptions in early adolescence. A combination of cross-sectional and longitudinal studies have shown that developmental decreases in perceived competence and corresponding motivational orientations are particularly marked at the transition to junior high school. Simmons et al. (1973) found that children’s self-perceptions (e.g., self-esteem, confidence in academic abilities) were most negative during early adolescence, particularly for those who had just begun junior high school. Harter (1981) reported a sharp decline in intrinsic motivational orientations toward classroom activities between sixth and seventh grades, corresponding to a transition to junior high school. Eccles et al. (1989) showed a decline between sixth and seventh grades, corresponding to a transition to junior high school, in self-esteem, and self-concept of ability in math, English, sports, and social competence. Peterson and Crockett (1985) showed a decline in body image and school grades between Grades 6 and 7, associated with a school transition. Finally, Simmons and Blyth (1987) found in two large studies a decline in self-esteem associated with the move to junior high school, particularly for girls. These two studies are particularly noteworthy, because Simmons and Blyth were able to control for age by comparing school districts with different structures—those with junior high schools beginning in seventh grade and those without (i.e., kindergarten through eighth grade elementary schools).

What accounts for these changes? There have been two general categories of explanations. First, Simmons and Blyth (1987) refer to these negative effects in terms of stress reactions. They favor a developmental readiness hypothesis—that a school transition occurring during the vulnerable age of early adolescence is more stressful than if it occurred a few years later. Moreover, they argue that many significant changes (e.g., puberty and a school transition) occurring close to the same time create a particularly stressful situation and detrimental reactions. Second, Eccles et al. (1984) emphasize changes in the nature of the school environments. Positive self-perceptions decline because junior high school environments are larger, more impersonal, and place a greater emphasis on evaluation and social comparison than do elementary schools. Other changes associated with the transition, such as a disruption of children’s social networks, may also explain the decline.

Declines in perceived competence and self-esteem are not shown consistently across studies, however. In a review of a large number of such studies, Eccles and Midgley (1989) describe a wide range of reactions. For example, Thornburg and Glider (1984) suggest that age per se produced more significant effects than did grade or school transitions. Eccles, Midgley, and Adler (1984) observed a decline in self-concept of math but not English ability. Others have found little evidence of any decline at all (e.g., Harter, 1982; Nottelmann, 1987). How can we predict when changes will occur and what directions they will take? Eccles and Midgley (1989) suggest it depends on the specific context in which the adolescents are changing from and to. To translate into the current analysis, it depends on two factors.

First, it depends upon whether the transition involves sufficiently dramatic changes to elicit a need to redefine old conclusions. If the format of the school is similar to the format of the old school, and if all the school chums are moving together, there may be less uncertainty that would elicit a need for information. Alternatively, if, as is usually the case, there is a change in social relationships, classroom structure, grading practices, and so on, then old conclusions can no longer hold, and transition processes are set in motion. Several findings consistent with this hypothesis are reported in the Eccles and Midgley (1989) review. Simmons and Blyth (1987), for example, found that negative effects were more likely when students moved to a larger school with greater ethnic heterogeneity. Moreover, as Eccles and Midgley (1989) point out, there may be greater changes in classroom practices for some subjects than for others, possibly accounting for the greater changes they found in students’ perceptions of their math versus their English competence. In brief, this analysis suggests that the greater the changes, the more the individual is likely to decide that old standards and conclusions about competence no longer apply. Consistent with this suggestion, Connell and Tero (1982, unpublished, cited in Eccles & Midgley, 1989, p. 158) found that students undergoing a transition are more likely to report that they do not understand the causes of their outcomes. As Eccles and Midgley (1989) note, this finding is noteworthy because children typically show evidence of understanding better the bases of their outcomes as they progress through school.

Second, it depends on the nature of the information available during this period of increased information seeking accompanying reassessment of conclusions about competence. Eccles and Midgley (1989) review data suggesting that
there is an increased focus on social comparison and tougher standards, accompanied by more negative teacher views, associated with the transition from elementary school to junior high school. Thus, it is hardly surprising that many come to a more negative conclusion than they did earlier.

A study of the impact of transitions during the junior high school/high school period on gender stereotype flexibility (Alfieri, Ruble, & Higgins, 1993) is relevant to this last point. If, as I have argued, dramatic transitions such as these usher in a need to redefine oneself and one's social world, then even previously well-defined categories, such as gender, may be subject to scrutiny. Such transitions may open up a window of change as individuals enter once again the Construction phase of active information seeking. Consistent with these ideas, we found that gender-stereotype flexibility showed an increase associated with a transition to junior high school. Because the study involved two school districts in which this transition occurred at different ages, it was possible to distinguish the effect of transition from grade. The findings showed increased gender flexibility whether the transition occurred at seventh grade or eighth grade. Interestingly, the findings were virtually identical across cross-sectional and longitudinal analysis.

Thus, the outcomes of transition changes are not inevitably negative but may depend on the exact information that is acquired. The important point is that transitions may lead individuals to redefine old conclusions, such as those concerning gender and one's competence. The negative outcomes found by many may not be intrinsic to the transition itself. Rather they may depend upon the results of the information gathering and construction process that the transition initiates.

B. GENERAL IMPLICATIONS

From the present perspective, differences across phase in orientations toward social information are key to understanding the personal changes that result from transitions. If, as I am arguing, individuals are maximally open to, and motivated to acquire, certain kinds of information during relatively circumscribed periods, then the particular information available at that time will largely determine the nature of the conclusions drawn. Moreover, at any point in the life-span, once conclusions are drawn, they may be difficult to change because of the shifts from active to passive information seeking and from relatively open to closed information processing. For example, although the particular toys young children play with may be sex typed for mostly passive reasons (i.e., adult selections), subsequent choices become actively determined. The gender-typed division of interests and skills that become consolidated at this time, along with the incorporation of gender stereotypes into one's self-definition, seems a likely source of well-known gender differences in adults in status, occupations, and perhaps even emotional functioning. Similarly, a girl in a classroom of high-achieving children who has concluded erroneously that she is poor in math may subsequently distort discreptant information (e.g., attribute a high score to luck), or simply stop trying. Even in a new context, then, her negative self-perception is maintained, and discouragement and low self-esteem are a likely consequence. Thus, once again, the cognitive–motivational changes that occur at this time may have far-reaching implications for girls' subsequent educational and occupational choices.

The idea that the seeking, processing, and impact of information varies systematically across phase implies that there are particular windows of change or vulnerability. In addition, the focus on active, constructive elements of cognitive–motivational orientations makes the present model particularly relevant to these potential intervention opportunities. Personal and interpersonal problems may arise because of negative implications derived from the context in which a period of transition is initiated or when a shift from one phase to another occurs. In an achievement setting, for example, new concerns with the evaluation of one's ability may create special affiliation problems for a child low in ability. Such children may isolate themselves because of embarrassment experienced during negative social comparisons with friends. Understanding why such isolation occurs is important to designing appropriate interventions. Because ability-related comparisons are less meaningful between friends of different ages, interventions that place isolated children with younger children (Furman, Rahe, & Hartup, 1979) may be particularly appropriate.

A number of intervention-oriented research has been directed at the gender stereotypes of young children. Several studies have shown that the stereotyped attitudes of 4- to 6-year-olds become more egalitarian in response to nontraditional books or television (e.g., Berg-Cross & Berg-Cross, 1978; Flaxer, Fidler, & Rogers, 1976). More important for the present argument, De Lisi and Johns (1984) found that children at the stage of gender constancy were particularly responsive to nontraditional material.

The phase model also has implications for theoretical developments in other areas. A phase perspective on self-evaluation may shed light on questions raised recently about social comparison theory. Butler (1989a) explores possible reasons for mixed conclusions about whether or not children under 7 to 8 years of age engage in social comparison. Goethals (1986) argues that a key proposition of Festinger's (1954) theory—that there is a drive to evaluate one's opinions and abilities—remains unresolved. He suggests that research findings indicate that "there is more of a drive to think that our opinions are correct and that our abilities are good than to find out the truth" (p. 274). Previous considerations of such questions have suggested that social comparison shows varying forms and patterns because it serves different functions (e.g., mastery vs. self-assessment; Butler, 1989a). The present analysis pushes this line of reasoning one step...
further. Not only does social comparison serve different goals but these goals emerge systematically as part of a single, developmental process. Level of knowledge and experience with a particular domain determine which goals are paramount. Thus, for example, young children may tend to emphasize comparisons that help them to understand task requirements rather than self-assessment because they are at early phases for most skills. Similarly, drive-like, diagnostic properties of social comparison may rarely be seen because they are time-delimited. Once an individual knows how a dimension is defined (Phase 1) and has inferred his or her likely capacity at the task (Phase 2), additional assessment is unnecessary as long as plans and subgoals are met with some regularity during Phase 3. Thus, because most social comparison research involves adults likely to be at Phase 3 for most activities, Goethals (1986) may be correct in suggesting that there is little evidence supporting Festinger’s proposed motive to engage in self-evaluation. (See Ruble & Frey, 1991, for further discussion.)

X. Conclusions

To reiterate, the main point of this paper is to suggest that transitions of many different types may be characterized by a set of phases representing changing cognitive–motivational orientations toward information. The transition to motherhood and social–cognitive transitions in childhood have been emphasized here, but similar changes are expected across diverse types of transitions, such as religious conversions, hospitalization, going to prison, and retirement. Indeed, in a charming account of the transition to becoming a brother, Mendelson (1990) describes a set of four phases that include some of the cognitive–motivational changes emphasized here, such as anticipatory learning during the first phase and personal style during the final phase. To illustrate, the discussion of the uncertainty and information seeking of the first phase includes the questions and confusions of Mendelson’s 4-year-old son, who, anticipating the birth of a brother or sister, wonders how the baby comes out. He first thought the baby would come out of the back, but then decided that it climbs up and sneaks out either the nose or the mouth.

The present model of transitions includes three phases. Construction involves the initiation of active information seeking. To illustrate with respect to data presented in this paper, the onset of pregnancy is marked by an increased interest in books about the experience relative to prepregnant information gathering. Shortly after entering school, children exhibit overt interest in performance and evaluative information, an interest that subsequently declines. Young children also show considerable interest in constructing definitions of gender and other categories of people (good/bad). As adolescents undergo a transition to junior high school, even well-established conclusions about gender and personal competence may be reassessed. It is important to be cautious about the nature of this initial phase, however. With the exception of the pregnancy data, there have been no adequate comparisons to pretransition levels of information seeking. Thus, the suggestion that information seeking becomes active at the Construction phase is more properly considered a hypothesis than a fact.

The present data are clearer about changes that accompany the shift from Construction to Consolidation. This phase is marked by the structuring of a set of expectations and new aspects of identity. The focus of information seeking narrows. Gender-constant children are particularly oriented toward same-sex information. Ability constancy is accompanied by an increased interest in social comparison information. Perceptions of stable, dispositional characteristics lead to a heightened interest in information relevant to future interactions. In addition, there is evidence of a greater personal impact of this focused information. Gender-constant children base decisions on gender information, rather than on other alternatives. Ability constancy is associated with a drop in perceived competence and self-esteem, which, in turn, increases reports of depressive symptoms. The emerging understanding of behavioral consistency is accompanied by an increased tendency to utilize trait information in selecting interaction partners, as well as a relative rigidity in the application of the consistency rule.

One way to characterize the shift from Construction to Consolidation, more generally, is in terms of goals, as discussed earlier with respect to social–cognitive and motivational theoretical perspectives. That is, the Construction phase is comparable to a predecisional orientation, subjective uncertainty and low control, and elicits goals of mastery and understanding. In contrast, the Consolidation phase is comparable to a postdecisional orientation, a sense of confidence and commitment, and elicits goals of adoption, need for closure, and assessment. During the Construction phase, the individual asks, “What is it?” whereas during Consolidation, the question turns to, “How does it apply to me?” and “How well am I doing?” In terms of gender, this shift is away from simply asking what it is that boys and girls do, and toward valuing only one of the alternatives and making sure that one’s behavior is consistent with it. This phase may also be considered one of personal investment in the new category. As part of a transition to a drug-free state, for example, one might wear a pin or post a bumper sticker to announce the adoption of this new identity.

Partly because many of the changes across phase are motivational in nature, there are certain empirical difficulties in examining these changes. Several of the studies of Phase 1 to Phase 2 shifts suggested that indices of motivational changes must take into account context variation. For example, changes in social comparison thought to accompany the transition in the meaning of ability may not be detected if observations are limited to a public setting (Frey & Ruble, 1985; Pomerantz et al., 1993). Similarly, the nature of the impact of children’s
awareness of stable, dispositional characteristics in people on information search may depend on whether the measure involves a hypothetical or an actual interaction (Cambry & Ruble, in press). Finally, what is defined as personally significant is culturally determined and might be best pursued through cross-cultural or subcultural analyses. As D'Andrade (1981) notes, social pressure to acquire particular items of knowledge varies across cultures. In a culture in which gender is an unimportant category, for example, there may be little evidence that children pass through a phase of same-sex bias, similar to the effect reported here. Indeed, as mentioned above, this "cultural" dimension may be one way to interpret sex differences in the impact of gender constancy—that is, that the culture places greater emphasis on gender distinctions for boys than for girls.

Phase 3. Integration, occurs after the uncertainties of the "What?" and "How?" questions have been answered, and the individual now adapts to the answers and behaves in terms of them. There are two types of integration that occur. First, the conclusions drawn must be integrated with ongoing activities. It is no longer functional to seek information and make general assessments, because it distracts from other, now more significant, activities. Thus, consistency maintenance processes begin toward the end of Phase 2 should continue. That is, biased perception, memory, and attributions, as well as various social-influence processes (behavioral confirmation, self-fulfilling prophecy), should all operate to maintain the conclusions that were formed in Phase 2 (Crocker, Hannah, & Weber, 1983; Swann, 1990). According to the present model, individuals at early phases, particularly at Phase 1, should show little evidence of consistency biases.

The research showing a shift from schema-consistent to schema-consistent memory biases as a function of schema development (Stangor & MacMillan, 1992; Stangor & Ruble, 1989a, 1989b) supports this suggestion, but longitudinal data are needed for a more definitive test.

Second, the conclusions drawn must be integrated with other aspects of knowledge about the self and the social world. We have argued that individual differences observed in late childhood and in adults reflect a shift to Phase 3. Emphases in the ongoing familial or cultural context may influence whether or not, for example, strong gender differentiations will be maintained as an individual difference at this phase. Similarly, individual differences in achievement goals reflecting mastery orientation versus demonstrating competence (Dweck & Leggett, 1988; Nicholls, 1984) may emerge in Phase 3 as a result of processes occurring during Phase 2. Moreover, findings of cultural differences in references to person-versus-situation factors as primary sources of causal inference (Miller, 1984; 1986) provide further evidence of such individual differences becoming evident subsequent to attaining a Phase 2 level of social knowledge. Once again, however, to more conclusively document this point, longitudinal analyses are needed to show a divergence in behaviors and goals across individuals after conclusions have been formed. Finally, preexisting individual differences may influence reactions during Phase 3 to conclusions drawn at Phase 2, as suggested by findings of the differential impact of expectancy violations on marital satisfaction after the birth of a first child.

At the present point, this proposal for three phases in the course of responding to transitions is by no means the answer to all the questions one might ask. It is not clear, for instance, whether the cognitive-motivational differences observed across phases are specific to particular content areas (gender, ability) or to more general cognitive changes that are occurring in these age ranges, such as representational differences discussed in the literatures on theory of mind (e.g., Frye & Moore, 1991; Frye, Zelazo, & Palfai, 1993) or categorization (Bigler & Liben, 1992; Gelman, Colman, & Maccoby, 1986). Currently, we are involved in longitudinal research addressing that type of question.

It is also not clear how well the present proposal would apply if certain assumptions did not hold. What would happen if individuals were not particularly interested in reducing uncertainty or, to take a point from Goodnow (1990), if the information needed to redefine old categories or develop new identities was difficult to obtain instead of being assumed readily accessible? Similar questions arise when there is a strong attachment to existing identities. Individuals who are strongly committed to their work, for example, may shut a new identity as a mother or as a retired person, especially if these identities were involuntary transitions. Other transitions (e.g., homelessness) are unwelcome and may lead to avoidance from the beginning. How do individuals approach transitions that are unwanted or, at least, not actively chosen? Given the importance of choice as a variable in related theoretical constructs, such as decision making and dissonance, future research might usefully compare cognitive-motivational responses to a particular transition, such as becoming a parent, between individuals who chose it or did not.

Finally, questions need to be asked about precisely what is that prompts the move toward reconstructing an old schema. Whether the critical spur is the simple presence of doubt or uncertainty (e.g., Acredolo & O'Connor, 1991), the presence of interpersonal conflict in the form of a difference in opinion from one's peers (e.g., Doise & Mugny, 1984; Doise & Palmonari, 1984), or the presence of some social pressure to think in a new way (e.g., D'Andrade, 1981), demonstrating the processes involved remains a challenging empirical task.

These are, however, questions for the future. The present analysis has the virtue of provoking such questions. It also offers a way of bringing together a number of perspectives and findings from the previous literature, and of adding to them in two unique ways. First, changes in orientations toward information are viewed as natural outgrowths of a kind of developmental change occurring at various points throughout the life-span. Uncertainty, for example, changes systematically in relation to an individual's emerging knowledge about and experience with a particular transition. Although in some cases this approach overlaps
with traditional notions of development (e.g., acquisition of gender in children), in others it is quite distinct in that any new major experience (e.g., hospitalization) may instigate these processes. Second, the present approach examines commonalities in these developmental processes across different types of social and individual change in an attempt to build a more general conceptualization of what is changing and how it is doing so.

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MULTIPLE-AUDIENCE PROBLEMS, TACTICAL COMMUNICATION, AND SOCIAL INTERACTION: A RELATIONAL-REGULATION PERSPECTIVE

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I. Introduction

In this article I have three agendas. First, I seek to resurrect a metaphor deeply woven into the fabric of social psychology. Regrettably, the metaphor has languished neglected by contemporary approaches to interpersonal perception and social interaction. Second, I describe a class of social dilemmas that current theories of communication, impression management, self-presentation, and interpersonal perception largely ignore. In so doing, I offer the metaphor as a heuristic and useful organizational framework for considering several varieties of human tactical communication and social interaction behavior. Specifically, I examine the tactical-communicative and self-concept maintenance properties of relational-regulation behaviors (distancing and embracing behaviors, and mixed or hidden message communications). Finally, I survey a program of experimental research that examines both the inter- and intrapersonal consequences of relational regulation. This research suggests that applying a relational-regulation perspective to interpersonal behavior may help organize and synthesize research and theory from a number of disparate areas including dispositional inference, self-perception, impression management, psycholinguistics, symbolic interactionism, and interpersonal communication.

1 The term relational has been used in several different contexts in the psychological and communication literatures. I use the term here to refer to the ways in which elements in the social field are "positioned" in relation to one another (i.e., their proximity, relatedness, clustering, association, etc.) rather than as a term to refer to the dynamics of interpersonal relationships per se (i.e., as in relational communication in close relationships).