

On Broadening the Cognitive, Motivational, and Sociostructural Scope of Theorizing About Gender Development and Functioning: Comment on Martin, Ruble, and Szkrybalo (2002)

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In their article on gender development, C. L. Martin, D. N. Ruble, and J. Szkrybalo (2002) contrasted their conception of gender development with that of social cognitive theory. The authors of this commentary correct misrepresentations of social cognitive theory and analyze the conceptual and empirical status of Martin et al.'s (2002) theory that gender stereotype matching is the main motivating force of gender development. Martin et al. (2002) based their claim for the causal primacy of gender self-categorization on construal of gender discrimination as rudimentary self-identity, equivocal empirical evidence, and dismissal of discordant evidence because of methodological deficiencies. The repeated finding that gendered preferences and behavior precede emergence of a sense of self is discordant with their theory. Different lines of evidence confirm that gender development and functioning are socially situated, richly contextualized, and conditionally manifested rather than governed mainly by an intrinsic drive to match stereotypic gender self-conception.

In a recent article published in *Psychological Review* (Bussey & Bandura, 1999), we presented a social cognitive theory of the determinants and mechanisms governing gender development and psychosocial functioning. It broadened the scope of inquiry in this field along several important dimensions. The theory conceptualizes gender development and functioning as the product of the interplay of cognitive, affective, biological, and sociostructural influences rather than treating these classes of determinants as rival theories. Second, this conception adopts a multifaceted social construction model of gender rather than one confined to a familial or peer transmission model. In this perspective, gender development and functioning are the products of a broad network of social influences operating within familial, educational, peer, mass media, occupational, and sociostructural subsystems.

The third dimension expands the scope of the theorizing and research on gender across the entire life course. The prevailing cognitive–developmental theories have conceptualized and analyzed gender development as largely a phenomenon of self-conception that is typically realized by late childhood. Adoption of a stereotypic gender conception is posited as the intrapsychic driving force of psychosocial functioning: I am a boy or a girl, therefore, I like to do stereotypic boy or girl things. Hence, the theorizing and research over the past decades have focused primarily on whether gender development is driven by gender identity, gender stability, or gender constancy.

The major issue in contention is not the importance of gender differentiation, which touches people's lives in diverse ways, but what invests gender with pervasive significance. Does gender

self-conception ordain gender development, as Martin, Ruble, and Szkrybalo (2002) posited, or is it cultivated and regulated by the interplay of a broad network of social influences operating interdependently in a variety of societal subsystems? Some gender differences are, of course, biologically founded, but most of the gendered attributes, roles, incentive systems, constraints, and opportunity structures arise from cultural design operating through gendered societal practices.

In one section of our article (Bussey & Bandura, 1999), we reviewed a vast body of evidence bearing on the explanatory and predictive status of gender self-conception. The findings, taken as a whole, showed that gender self-conception is ill-equipped to bear the explanatory burden placed upon it. Neither gender identity, gender stability, nor gender constancy precede early gender-linked preferences and behavior. Cognitive developmentalists have argued that the measures of gender self-conception were not up to the task of providing adequate tests of cognitive–developmental theory. The theory is valid, but the measures were faulty. However, methodological refinements did not yield any more definitive results that gender self-conception is the prime determinant of gender development.

In their recent article, Martin et al. (2002) took umbrage at our review of the evidence, reported that new findings demonstrate that what they call rudimentary *identity/labeling* influences early gender development, and interspersed their review with misconceptions of social cognitive theory. In this commentary, we correct misrepresentations in their critique of social cognitive theory, evaluate the theoretical status of their hybrid theory that combines cognitive developmentalism with schema theory, and review findings bearing on the dual constituents of their theory.

Alleged Cognitive Metamorphosis of Social Cognitive Theory

Martin et al. (2002) stated that in the 1980s social learning theory underwent “a marked shift toward the inclusion of cognitive

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factors as important mediators and moderators of environmental forces" (p. 904). The alleged cognitive metamorphosis has no foundation in fact. Unlike the behavioristic conceptions that were dominant at the time, social learning theory argued from the outset for the influential effect of cognitive factors in self-development, adaptation, and change. Space limitation permits only a few examples. The prevailing analyses of learning focused almost entirely on learning through the effects of rewarding and punishing consequences to the neglect of social modeling. The explanatory mechanisms were cast in peripheralistic associations of environmental stimuli and responses. Neobehaviorists, such as Miller and Dollard (1941), recognized modeling phenomena but construed them as a special case of discrimination learning in which the model provides a social cue, the observer performs a matching response, and its reinforcement strengthens the tendency to behave imitatively. In a chapter entitled "Vicarious Processes: A Case of No-Trial Learning," Bandura (1965) marshaled evidence that observational learning requires neither response enactment nor reinforcement. Social modeling operated through four cognitive subfunctions encompassing attentional, representational, enactive translational, and motivational processes (Bandura, 1971). Modeling involved abstracting the information conveyed by specific exemplars about the structure and the underlying principles governing the behavior rather than simple response mimicry of specific exemplars.

In an effort to explain nonreinforced modeling, operant conditioners (Baer, Peterson, & Sherman, 1967) contended that reinforcement of some matching responses would establish imitation as a conditioned reinforcer. We conducted research demonstrating that generalized imitation is governed by children's social beliefs and outcome expectations (Bandura & Barab, 1971). When the functional value of modeled behavior was systematically varied, children faithfully imitated the behavior of a female model who rewarded them for doing so but quickly ignored the behavior of a male model when he brought them no rewards. When the discriminability of the rewarded modeled behavior was varied, children imitated discriminable rewarded motor responses, ceased imitating discriminable nonrewarded verbal responses, but imitated nonrewarded responses that lacked features that would make them easily discriminable from the other rewarded response classes.

On the occasions when children modeled discriminable behavior in the nonrewarded class, this tendency was very much under cognitive control. Some of the children believed that the model demanded it ("I supposed to"); others performed nonrewarded imitations in the mistaken hope that the nonrewarding model would become more beneficent ("I thought if I kept trying lots of times he might get used to it and start up giving candy like the lady did"); and still others acted like seasoned scientists testing hypotheses about outcome contingencies by systematically varying their behavior and observing its outcomes ("Sometimes I'd do it and sometimes not to see if I'd get any candy"). In short, social learning theory did not undergo a cognitive epiphany from an alleged noncognitive origin. As the cited publications show, cognition was very much a part of the theory from the outset rather than "reified in the 1980s when cognitive features were integrated into the theory" (Martin et al., 2002, p. 907).

For years cognitive developmentalists dismissed the role of modeling in gender development on the grounds that children did not exhibit same-sex modeling in experiments that typically included only a single model (Maccoby & Jacklin, 1974). This

oft-repeated claim was based on delimited experimentation rather than on the powerlessness of gendered modeling. In experiments including multiple models with varying proportions of males and females, the propensity of children to pattern their behavior after same-sex models increased monotonically as the percentage of same-sex models displaying the same conduct increased (Bussey & Perry, 1982; Perry & Bussey, 1979). When children observed models of their sex collectively exhibiting stylistic behaviors that diverge from those displayed by other-sex models, children patterned their behavior more after same-sex than they did after other-sex models. This preference for same-sex models occurs irrespective of children's level of gender constancy (Bussey & Bandura, 1984).

While cognitive developmentalists were proclaiming the irrelevancy of modeling influences in same-sex modeling, or attempting to restrict it to children who had achieved gender constancy, social cognitive theorists were examining how children construct self-regulatory personal standards when exposed to conflicting standards exhibited by adult and peer models; under disparities in models' competencies; under discrepancies between the standards models practiced and those they preached; and under the level of gendered consensus across multiple models (Bandura, 1986). Other lines of research identified factors that override the influence of the models' gender status, such as the functional value of the behavior being modeled, the model's power, and control of desired resources. Still other lines of research demonstrated experimentally that nonstereotypic media modeling expands children's aspirations and the range of role options they consider appropriate for their gender (Ashby & Wittmaier, 1978; O'Bryant & Corder-Bolz, 1978). Repeated symbolic modeling of egalitarian role pursuits by males and females reduces gender-role stereotyping in young children (Flerx, Fidler, & Rogers, 1976). Modeling is but one example in which dismissive declarations by cognitive developmentalists impeded scientific inquiry.

Behavioristic theories favored a crude functionalism in which human behavior was shaped and regulated automatically by rewarding and punishing consequences. In social learning theory, the effect of experienced response consequences operated through informative and motivational functions rather than as automatic response shapers and controllers. From its outset, social learning theory posited a proactive, agentic perspective. As already noted, in this view, human learning is heavily cognitively mediated. Forethought and self-reflective and self-reactive functions were posited as core features of agency. People motivate and guide their actions by their self-beliefs, goals, outcome expectations, and self-regulatory influences rooted in personal standards and self-evaluative reactions to their own conduct.

Martin et al. (2002) made much of the relabeling of social learning theory as social cognitive theory and misconstrued the labeling changes as a marked theoretical mutation. The volume *Social Foundations of Thought and Action* (Bandura, 1986) explains the basis for the relabeling. A variety of theories founded on divergent tenets were all called *social learning theory*. Miller and Dollard's (1941) drive theory, Rotter's (1954) expectancy theory, Gewirtz's (1971) operant conditioning theory, and Patterson's (1982) functionalist theory were all christened with the same social learning appellation. This created untold confusion in the literature concerning the theory being posited and tested. Moreover, the theory under discussion has always been of much broader scope than the initial descriptive learning label. It encompassed motiva-

tional and self-regulatory mechanisms grounded in cognitive processes that extended beyond issues of learning. In the more fitting appellation as *social cognitive theory*, the *social* portion of the title acknowledges the social origins of much human thought and action; the *cognitive* portion recognizes the influential contribution of thought processes to human motivation, affect, and action.

Martin et al. (2002) faulted us for “arguing that cognitive theories are no longer relevant” (p. 928) and claimed that our “discounting of cognitive mechanisms and theories are misguided” (p. 907). We said nothing of the sort. Given that social cognitive theory encompasses a wide variety of cognitive factors governing the acquisitional, motivational, and self-regulative aspects of gender development, the misattribution of anticognitivism is most puzzling.

The major point at issue is not about the role of cognitive determinants in gender development and functioning, which is central to both theories, but the nature, scope, and function of the cognitive factors posited by the theories. For Martin et al. (2002) *cognition* means gender conception and schema. In social cognitive theory, cognitions take more varied forms. For example, the conceptions of oneself and the world around one constructed from enactive and vicarious experiences are cognitions; self-efficacy beliefs are cognitions; personal goals and aspirations are cognitions; material, social, and self-evaluative outcome expectations for prospective actions are cognitions; and perceived environmental facilitators and impediments are cognitions. It is not that social cognitive theory needs cognition, but proponents of cognitive developmentalism need to recognize and encompass sociocognitive determinants known to affect gender development and functioning to achieve a comprehensive theory.

Cognitive developmentalists have yet to explain the mechanisms through which gender knowledge spawns and regulates gendered conduct. The notion that children are motivated to behave in accordance with their gender identity is mute regarding explanatory mechanisms. Social cognitive theory does not reject gender cognitions; rather, it specifies how such cognitions operate through gender-related personal standards in self-regulatory mechanisms in concert with many other personal and sociostructural determinants. It is the gendered standards that children adopt and apply self-reactively and the outcomes they believe gender foretells socially that serve as governing influences. In our previous publication (Bussey & Bandura, 1992), we had reviewed in some detail how self-sanctions rooted in personal standards and outcome expectations for different styles of behavior contribute to the course of gender development and everyday social transactions in which gender differentiation comes into play. Beliefs of personal efficacy also operate as determinants across diverse spheres of functioning, societal subsystems, and cultural orientations, not only in childhood but over the entire life course (Bandura, 1997, 2002b).

Theoretical Hybridization

Martin et al.’s (2002) conceptual scheme is a hybrid of cognitive–developmental theory with a hierarchical gender stage-like structure and a nonhierarchical gender schema theory. It comes under two appellations in different places—cognitive–developmental theory or schema theory. Cognitive–developmental theory is founded on a stage model paralleling Piaget’s discrete stage changes of cognitive growth, whereas schema theory is

founded on a continuity model of information processing in which the application of cognitive operations to new information changes the state of knowledge.¹ Martin et al. (2002) presented this composite as a unified theory with two separate sets of literatures. To further complicate matters, there are different versions of self-schema theories. Martin et al. (2002) ignored the theoretical incongruities in the amalgam. How these two conceptual approaches are integrated requires explicit specification.

Over the years the cognitive–developmental component of the theory has been plagued empirically by discordant causal ordering. Gender conception is posited as the organizer, motivator, and regulator of gender development. However, gendered preferences and behavior emerge before attainment of gender self-conception. So the level of gender conception that was posited to govern gender development was shifted downward over time. Initially, the theory proposed gender constancy (i.e., one is unalterably a boy or a girl) as the regulator of gender development (Kohlberg, 1966). Because gender differentiation precedes gender constancy, gender stability (i.e., gender remains constant over time) was accorded a determinative role (Martin & Little, 1990). However, gender stability did not solve the causal ordering problem. So gender identity (i.e., labeling oneself as a *boy* or *girl*) was invoked as the driving force for gender development. It, too, was faced with the backward causal ordering in which the developmental outcome (gendered preferences and behavior) preceded the proposed cause (gender identity).²

¹ We thank an anonymous reviewer for calling attention to the lack of conceptual integration of cognitive developmentalism and self-schema theory.

² Kohlberg (1966) originally proposed that children do not adopt stereotypical gender preferences and behavior until they recognize the permanency of their gender. Empirical tests of this proposition failed to yield any consistent relation with gender constancy. In a recent meta-analysis Evans, Metindogan, and Carter (2003) selected 27 studies that included, as outcome measures, some combination of stereotypic knowledge, stereotypic verbalized preferences, and behavior. Half the studies were discarded as outliers. The meta-analysis simply confirms that gender constancy lacks predictiveness. When age variations are controlled and outliers are excluded, children who recognize the permanency of gender have neither better stereotypic knowledge nor express greater preference for gender-linked activities than do those who lack gender constancy.

Close examination of the five studies that comprise the meta-analysis of the relation of gender constancy to behavior reveals the questionable relevance and mixed nature of the outcomes. The study by Slaby and Frey (1975) measured attention to same-sex models not behavior. The relation for boys was not present for girls. In the study by Downs and Langlois (1988), gender constancy was related to scores on a draw-a-person projective test but not to gender-type preference or behavior. The study by Lobel and Menashri (1993) found only a main effect for sex on gender-typed toy choice on brief play but no effect for gender constancy. In the study by Bussey and Bandura (1984) children modeled their behavior more after same-sex models than they did after other sex models, regardless of gender constancy levels. The study by Fagot (1985) found no relation between gender constancy and proportion of time spent playing with male- and female-linked toys when age was controlled. In sum, there is little in these data to support the claim that gender constancy promotes gendered behavior.

The discordance problem is more than empirical, however. Gender constancy theory fails the required temporal ordering test. Children’s gendered preferences and behavior appear long before they understand the permanency of gender. The latter cannot be the determinant of the former.

Ruble and Martin (1998) speculated that infants may acquire rudimentary gender understanding prior to the development of gender identity but that it was not sufficient to govern gender development. As they rightfully pointed out, "Simply having basic discrimination abilities may not be sufficient for developing gender knowledge bases" (Ruble & Martin, 1998, p. 992). Most recently, Martin et al. (2002) reported that findings on gender category discrimination, designated as labeling/identity, based on nonverbal measures show that infants have a rudimentary gender identity in the 1st year of life and that it shapes gender preferences. The major conceptual problem with this claim is that rudimentary gender discrimination is not self-conception, which is a self-referent phenomenon. Young children discriminate between the sexes before they have a sense of self as a boy or a girl. To treat nonverbal gender discrimination as rudimentary gender identity misconstrues the factor being assessed.

Equivocal Findings and Dismissal of Discordant Evidence

The strong affirmation that nonverbal indices of gender categorization predict gender preferences and behavior does not withstand close empirical scrutiny. Indeed, the pattern of equivocal and null findings is much the same as in the extant literature regarding the predictive weakness of gender identity, stability, and constancy. The attribution of discordant findings to deficient methodology is also much the same as previous discounts of failures to verify a relation of gender conception to gender conduct (Bem, 1989; Johnson & Ames, 1994; Martin & Halverson, 1983; Siegal & Robinson, 1987; Szkrybalo & Ruble, 1999). Space limitations permit only a brief review of the reported empirical findings and whether they match the claims.

Martin et al. (2002) conceded the problem that the outcome precedes the posited cause but then dismissed the discordant evidence on the grounds that "observations about the time line for development do not in themselves invalidate the influence of cognitive milestones such as gender labeling and gender constancy" (p. 918). This is a puzzling statement because correct temporal ordering of variables is a prime requisite for the existence of functional relations. Throughout their article, Martin et al. (2002) attributed to faulty methodology the many findings that are discordant with their theory. In their view, having gender preference precede gender identity is not necessarily disconfirmatory because "earlier forms of gender knowledge may exist that are simply not being captured by the kinds of gender and identity labeling measures" (p. 918). No information was provided on the nature of these early forms or how they should be assessed. The equivocal findings concerning the link between gender knowledge and behavior were also discounted because "there are many methodological challenges in conducting these studies" (p. 915).

The key factor in cognitive–developmental theory that is said to govern gender development (i.e., gender stereotypic knowledge) is fully mastered very early by almost all children, so they differ little from each other in this regard. As Martin et al. (2002) noted, lack of variation precludes correlation: "Individual differences may be

precluded by the very high levels of knowledge that most children exhibit about gender roles after the age of 5 years" (p. 915). They dismissed the nonpredictiveness as a methodological problem rather than as a serious theoretical one. What is the value of a theory in which its focal determinant has no explanatory or predictive value because it differs little between individuals?

There is no evidence that infants have a conception of their own gender before they can distinguish between the two sexes and show a preference for gender activities with their own gender. The earliest that infants exhibit any signs of self-recognition is between 15 and 21 months (Lewis & Brooks-Gunn, 1979). Infants first use actions to recognize themselves and later their physical characteristics. Observable aspects of the self, especially appearance, are used in the early recognition of self before nonobservable aspects, such as the infants' name (Bullock & Lutkenhaus, 1990). It takes time for infants to realize that they belong to the category of females or males and even longer before they label themselves as a *boy* or *girl*. No conception of the self is required for early learning about the gender distinctions. As we have previously documented (Bussey & Bandura, 1999), parents set the stage for their infants' gender-linked learning by the way they structure their child's physical environment and by their differential social reactions toward gender-linked activities.

Expectation that nonverbal assessments of implicit knowledge will verify the causal primacy of gender identity/labeling has not fared any better than it has in empirical tests with more explicit measures. In studies using the habituation procedure, infants are able to discriminate between the two sexes as early as 7 months when presented with male and female faces and with voices. Gender labels are among the first verbal labels that children come to understand (Fenson et al., 1994). In studies using the preferential looking procedure, infants begin to comprehend gender labels by 18 months (Poulin-Dubois, Serbin, & Derbyshire, 1998). Also by 18 months, both boys and girls look longer at activities linked to their own gender and this differential preference is stronger for boys at 23 months. However, boys do not show any understanding of the gender stereotyping of activities, and girls show gender-stereotypic understanding in some contexts and not in others (Serbin, Poulin-Dubois, Colburne, Sen, & Eichstedt, 2001).

None of this research with implicit probes has shown that knowing gender labels or gender stereotypes are a prerequisite for preferential attention to same-sex activities. It is noteworthy that over the age range of 12 to 24 months, when boys are increasing their preferential attention to same-sex activities, girls are not increasing their same-sex preferences to the same extent, and yet they show increased knowledge of the gender-linkage of activities. This difference reflects the sharper differentiation of gendered conduct by parents with boys than with girls.

Different tacit measures of self-recognition are unrelated to gender-linked preferences (Campbell, Shirley, & Heywood, 2000). Martin et al. (2002) dismissed these findings as well on methodological grounds and called for new methodologies. "Future research would benefit from new methodologies and direct testing of infants between the ages of 18 and 24 months" (p. 922). However, this prescribed methodological remedy evades the causation problem that gender preferences occur temporally prior to gender identity. The investigatory time frame they prescribed is long after children have already discriminated between the sexes. By raising the lower limit of the suggested timeline to when gender identity begins to emerge (i.e., 18 months), this methodology forecloses

It would be of interest to compare the amount of variance in gender preference and behavior that is accounted for by sociocognitive factors, such as perceived self-efficacy, outcome expectations, and perceived environmental facilitators, and impediments for gender-linked activities.

disconfirmatory evidence that gendered preferences and behavior precede gender identity.

Martin et al. (2002) made exaggerated claims about the level of support for the relation between what they call *gender identity/labeling* and gender preferences and conduct. For example, in summing up the evidence for this factor as the organizer of gender development, Martin et al. (2002) stated, "In short, the data supporting a link between gender labeling/identity and gender-typed preferences and behaviors appear strong and consistent" (p. 914). This strong claim does not match the empirical evidence. The evidence is inconsistent across studies, and the relation is evident in some domains but not in others (Fagot & Leinbach, 1989; Fagot, Leinbach, & Hagen, 1986; Martin & Little, 1990; Weinraub et al., 1984). As Levy (1999) noted, "However, to date no research (including the present study) has shown that toddlers' gender labeling concurrently correlates with their gender role awareness or gender-typing" (p. 869).

What people extract from their experiences is structured knowledge rather than isolated bits of information. Structured knowledge is commonly called a *schema*. The schema part of the hybrid developmental theory warrants brief comment. In both social cognitive theory and schema theory, gender conception involves a process of increasing abstraction. Initially, infants and toddlers come to differentiate the sexes and their distinctive accompanying activities by what is modeled, socially structured, and sanctioned (Bussey & Bandura, 1999). This initial gender differentiation, based largely on salient physical markers, precedes gender self-identity. As children become more cognitively adept, their knowledge of gender extends beyond nonverbal categorization of people and objects to explicit labeling of people, objects, and styles of behavior according to gender. They see people, objects, and classes of behavior repeatedly labeled according to gender and observe and experience the differential linkage of gender to selected classes of activities and associated social sanctions. These influences foster increasing abstraction of gender attributes and their integration into a more complex gender knowledge structure. Both theories assume that children come equipped with capabilities to discriminate, generalize, and categorize events. The processes by which generic gender-related knowledge is socially constructed is also much the same in social cognitive theory and schema theory. Both draw on the same basic information-processing principles on how abstractions are formed and how structured knowledge affects attentional, organizational, and memorial processes.

The theories differ, however, in the scope of the sources and modes of influence that inform and guide the social construction of gender. In social cognitive theory, self-conceptions are formed through cognitive processing of gendered information conveyed by modeling, differential social evaluative reactions, and direct tutelage in interpersonal transactions within familial, educational, peer, mass media, and occupational social subsystems. Different programs of research examine how the multiplicity of influences work uniquely and interdependently. In cognitive-developmental theory, which is heavily rooted in the Piagetian tradition, gender self-conception emerges spontaneously "over the normal course of biopsychosocial development" (Martin et al., 2002, p. 906) through largely untutored activities. Children are endowed with intrinsic motivation to build a gender schema. As is shown later, the determinants and mechanisms governing the gender identity

formation in cognitive developmentalism remain somewhat obscure.

The theories also differ in the relative weight assigned to gender self-conception, the locus of agency, and the changeability of self-conception. Martin et al. (2002) emphasized the controlling automaticity of the gender schema. Once the self-schema is formed, it drives children to "attend, act, and remember in ways that conform to their gender schemas" (Ruble & Martin, 1998, p. 987). In social cognitive theory, self-influences rooted in gender standards operate in concert with a host of other sociocognitive determinants in shaping the course of gender development and functioning. We see in a later section of this article that the effect of gendered self-influence in the dynamic interplay of forces depends on the strength of the co-occurring determinants in the multicausality. The issue of whether the self-schema or the individual is the agent is considered later.

Gender self-schema is not destiny. It neither rules supreme nor is refractory to change. For example, compared with boys, girls have a lower sense of mathematical self-efficacy (Hackett, 1985). However, guided mastery experiences raise their self-efficacy and accompanying mathematical competency to the level of boys (Schunk & Lilly, 1984). Girls in classrooms whose teachers do not subscribe to the stereotypic gender bias develop a higher sense of mathematical self-efficacy and valuation of mathematics (Eccles, 1989).

Gender labeling assumes special significance in early gender development because it gives salience to sorting people on the basis of gender, aggregates the features and activities that characterize each gender, and provides the basis for categorizing oneself. Once gender self-categorization occurs, it takes on added significance as children increasingly recognize that the social world around them, composed of institutional arrangements, norms, incentive systems, environmental supports, constraints and opportunities, is heavily structured around this categorical differentiation.

Martin et al. (2002) alleged an inconsistency in our theorizing concerning changes in abstraction of development of gender conceptions and the governing sociocognitive determinants. They did so by selectively quoting from different publications on our theorizing about the changing nature of gender conceptions from the pregender identity to the self-conception levels of development and the accompanying broadening of the regulators of gender conduct from exclusively social sanctions to self-sanctions. They then presented quotations representing the different levels of abstraction and their determinants at different points in development as evidence of vacillation in our theorizing.

It should be noted that gender schema theory predicts more extensive gender differences than have ever been observed. Males and females are much more alike than different in their psychosocial functioning and how sociocognitive influences contribute to it. In causal modeling of how multiple determinants operate in concert across children's diverse spheres of functioning, the similarities in the structural paths of influence for boys and girls are much more striking than are the gender differences (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003; Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001; Bandura, Caprara, Regalia, Scabini, & Barbaranelli, 2004; Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; Caprara, Regalia, & Bandura, 2002; Caprara, Regalia, Scabini, Pastorelli, & Bandura, in press). As societal socio-structural constraints and inequities are further removed, the gen-

der differences are likely to shrink even more. In managing the transactions of everyday life, children clearly base their behavior on a variety of factors, not just whether they are a boy or girl.

There is a need for caution in reifying the descriptive label *schema* for structured knowledge and investing it with agentic properties. In the words of Martin et al. (2002), the subpersonal schema is the agent, not the child—"schemas direct children in an active manner" (p. 911). This simple direct-effects model, couched in the language of intrinsic motivation and self-construction, is not only problematic conceptually, but has been found wanting empirically. In social cognitive theory children play an active part as agents in their personal development and functioning. To be an agent is to influence intentionally one's own functioning and life circumstances. In gender schema theory, children are said to be driven by a schema. Contrary to the claim of Martin et al. (2002), a social constructionist conception of child development is more accordant with the agentic perspective of social cognitive theory (Bandura, 2001, 2004) than with the view that an elusive schema is managing the child.

Martin et al. (2002) acknowledged that "gender schemas are elusive—these constructs are difficult to define and measure" (p. 913). Given the commanding directive role bestowed upon schemata, testability of the theory requires explicit specification of what a self-schema is, how to measure it, and how it creates and regulates behavior. If we do not really know what it is and how to measure it, how can we study it? Scientific progress is precluded by conceptual and operational obscurity. Although the theory is couched in expansive schema terms, the research actually focuses on the more mundane indices of gender, such as gender discrimination, self-categorization, and gender stereotyping.

Pregender Identity Sex Differentiation

Martin et al. (2002) assumed that a conception of gender is necessary at the outset to discriminate the sexes and claimed that we did not explain how this could come about otherwise. It is not that we offered no explanation of the precursors of gender identity formation. Gender identity emerges from cognitive processing of correlative experiences in which physical characteristics, objects, and activities are differentially linked to the sexes. Pervasive social influences, especially gendered parental practices, promote this discrimination and invest it with social significance (Bussey & Bandura, 1999).

Martin et al. (2002) asked, "Why would children 'choose activities consistent with gender-linked stereotypes' until they knew which sex they were?" (p. 906). There is a pervading social reality, such as parents, who make gender salient and functionally significant. They bring their influence to bear on the development of gender orientation from the very beginning of life. They do so by structuring, channeling, modeling, labeling, and reacting evaluatively to gender-linked conduct (Bussey & Bandura, 1999; Leaper, 2002; Pomerantz, Ng, & Wang, 2004). These gender-linked influences provide infants and toddlers with more than enough incentive to pay attention to, categorize, and remember the characteristics and the consequential import of the gendered reality. As a result, infants and toddlers come to differentiate the sexes on the basis of the observable markers and the functional significance of this category before they recognize that they are a boy or girl.

In recent years, some cognitive developmentalists downgraded the influence of parents in gender development and elevated the role of peers (Harris, 1995; Lytton & Romney, 1991). Others emphasized the bidirectionality of influence with the parent-child dyad (Kuczynski, 2003; Maccoby, 2002). This dyad is but one of the multiple interlocking subsystems operating within a family system. There is also a bidirectionality of influence between the perceived efficacy of the spousal partners to manage their relationship, and its impact on the efficacy of the parent-child relationship. The interplay between the efficacy of the dyads contributes to the sense of collective family efficacy. It is the perceived efficacy of the collectivity rather than the dyads that is most predictive of quality of family functioning (Bandura et al., 2004).

Martin et al. (2002) shared the view that peer "sex segregation might represent a more important antecedent to sex-typed behavior than other influences, such as the family" (p. 926). In commenting on this line of developmentalism, Steinberg (2001) wondered why evolutionary forces would have idiosyncratically gone awry, stripping abiding parental caregivers of any enduring influence but making peers the font of socialization. In the case of gender development, the premise of peer socialization primacy ignores the discordant empirical evidence that infants and toddlers discriminate the sexes and exhibit gender-linked preferences and activities long before they form peer cliques.

In social cognitive theory, peers function as one of the interdependent societal subsystems that contributes to gender differentiation. However, peers are not the initiating motivators or the originators of gender development. Although some studies have found marginal in-group favoritism expressed by 3-year-olds (Yee & Brown, 1994), it usually is not evident until about the 5th year (Nesdale & Flessner, 2001). In-group favoritism is only possible once gender identity is achieved. It further relies on social categorization and social comparison processes that are well beyond the capabilities of toddlers, who already exhibit gendered preferences and behavior.

By downplaying parental influences in cognitive developmentalism, the precursors of gender identity remain shrouded in ambiguity. Martin et al. (2002) invoked "rudimentary" gender identity of unclear origin as the determinant of gender identity. Where does the rudimentary gender identity come from? According to Martin et al. (2002), gender identity "emerges over the normal course of biopsychosocial development and serves to channel gender-typed behaviors in children" (p. 906). This conception of the early origin of gender identity is quite obscure about the determinants, governing mechanisms, and developmental time course of gender identity formation.

The view that one needs rudimentary gender identity to learn gender identity has a strong ring of analytic circularity. In a conceptual twist, Martin et al. (2002) acknowledged that "when early differentiation in behavior occurs, it may be related to biological influences, parental reinforcement, and/or familiarity with the toys in the home" (p. 918). This acknowledgement of parental influence and selective channeling by play materials goes counter to the view that gender identity is the prerequisite for gender differentiation. These familial determinants are in accord with social cognitive theory that social influences promote early gender discrimination based on observable gendered attributes and serve as the precursors of early gender identity formation. Social forces, of course, affect gendered functioning throughout the life course, rather than being confined to parents or to the early years.

Motivational and Self-Regulatory Systems Governing Gendered Development and Functioning

The mechanism by which cognition is translated into action is a major issue in a comprehensive theory of human functioning. In his insightful conceptual analysis of the causal gap between thought and action, Searle (2001) explained that knowledge alone is insufficient to bring about the corresponding behavior. A theory of gender development must address the critical causal gap between gender identity and adoption of gendered styles of behavior. Individuals categorize themselves as male and female and become informed about gender stereotypes, but self-categorization does not predetermine how they will act, as though gender knowledge leaves one with no choices. In fact, some choose to follow the gender stereotype, others act in opposition to it, and many adopt an admixture of attributes. In the agentic social cognitive view (Bandura, 2001), the effect of thought on action is mediated through self-regulatory influences operating in the causal gap.

As we have discussed in our sociocognitive analysis of gender (Bussey & Bandura, 1992), infants and toddlers form categories to chunk the social world and quickly learn to discriminate the sexes. Through conditional experiences, they differentially associate attributes and activities with each of the sexes at a very young age before the emergence of any sense of self. With further conditional experiences, they develop gender-linked preferences, begin to form a gender identity, and adopt gendered standards to regulate their gender-linked behavior through anticipatory social and self-evaluative sanctions.

The conception of the subfunctions governing observational learning specify the transformational and generative mechanism through which cognitive representations are transformed into appropriate styles of behavior (Bandura, 1986). The self-regulatory and motivational mechanisms specify how individuals motivate themselves and guide their action anticipatorily.

There is much ambiguity in Martin et al.'s (2002) cognitive-developmental theory about the motivational system guiding gender development. Sometimes stereotypic gender knowledge is posited as the organizer and motivator of gendered behavior. However, people know the gender stereotypes full well but do not necessarily act on them. Martin et al. (2002) drew the prime motivator of gender development from the cognitive-developmental component of their theory. Following the tenet "I am a boy or a girl, therefore I am driven to do stereotypic boy or girl things," Martin et al. (2002) contended that self-categorization motivates the adoption of stereotypic behavior.

Although Martin et al. (2002) considered gender stereotype matching to be the prime motivator for gender development, they also mentioned a "mastery or competence motivation" (p. 909). However, they provided no explanation of the nature of this motivational system, its conceptual origin, how it is indexed, its empirical status, and its compatibility with the stereotype matching drive. As reviewed elsewhere (Bandura, 1986), different indices of mastery motivation are weakly related to each other, show little stability even over a short time, and are not consistently related to competent behavior. Without an independent measure of mastery drive strength, the mastery motivator is typically inferred from the type of behavior it supposedly causes. Are mastery and competence the same drive or different drives? The functional relation of the competence drive and the stereotype matching drive is never explained. Is matching the gender stereotype fulfillment of the

competence drive and failure to match the social stereotype a state of incompetence? It is not enough to simply invoke a mastery or competence drive. It requires theoretical specification, empirical documentation, and conceptual integration.

Neither self-categorization nor stereotypic gender knowledge can account for variations in gender preferences and behavior because all children master the differentiation early and differ little in this regard. The variance in gender preference and behavior lies in how children construe the diverse gendered influences that impinge upon them and in the types of gender-related expectations, beliefs, and self-regulatory standards they construct and apply in their social transactions.

Gender conception does not automatically motivate matching the behavior of same-sex models as Martin et al. (2002) maintained. As in other spheres of psychosocial functioning, gendered behavior is socially situated and conditionally expressed. The effects of incentive systems, social status, and power on gendered behavioral variability have been amply documented (Bussey & Bandura, 1992). For example, in modeling situations under varied incentive conditions, children go with social influence rather than with self-knowledge that they are a boy or girl. Young boys emulate female models who possess power over desired resources (Bussey & Bandura, 1984; Bandura, Ross, & Ross, 1963) and when their behavior has greater functional value than that of male models (Bandura & Barab, 1971). They even discriminate between classes of behavior exhibited by the same model, adopting the rewarded ones and ignoring the nonrewarded ones (Bandura & Barab, 1971). Children shun same-sex models when they exhibit the stereotypic behavior of the other gender that foretells personal and social disapproval (Perry & Bussey, 1979). Although fully cognizant of their gender and the stereotypes that go with it, children vary in their expected social and self-sanctions for gendered classes of behavior, their self-appraisal of their efficacy across diverse spheres of functioning, their goals and aspirations, and their conception of the normative structure of the society at large (Bandura, 1995, 1997; Boldizar, Perry, & Perry, 1989; Bussey & Bandura, 1992; Eagly & Steffen, 1986; Raag, 1999; Raag & Rackliff, 1998).

Given the notable variability of gendered behavior conditional on social influences in a gendered society, a theory that makes stereotypic knowledge the preeminent locus of control is seriously problematic. Martin et al. (2002) sought the solution for the problem of situational variability in the structure of the self-schema. The schema is said to be multidimensional, but the authors neither specified what the dimensions are nor provided empirical evidence for the factorial structure of the schema. Multidimensionality, whatever it is, hardly solves the regulatory locus problem, given the discriminative variation in gendered behavior with the same self-schema under different social influences. The evidence regarding sociocognitive determinants indicates that the variability has more to do with the functional conditionality of gendered behavior than with the multidimensionality of the construct.

Gender self-conception and the motivational and sociocognitive self-regulatory factors represent different classes of determinants. Hence, self-regulatory factors, such as perceived norms, social sanctions, affective self-reactions, and other motivators, should not be merged with gender self-conception into a gender conglomerate to increase its predictiveness. Self-regulatory factors influence gender preferences and behavior, but they are not defining facets

of gender conception. Different determinants of gendered styles of behavior should not be embodied as different dimensions of gender self-conception. To merge them into a gender composite is to confound which of the factors within the conglomerate affect the course of gender development and functioning.

Gender Conception as a Component in Self-Regulatory Mechanisms

In social cognitive theory, the self-regulatory mechanism rooted in personal standards operates via three subfunctions—self-monitoring, a comparator process rooted in a personal standard, and evaluative self-reactions to matches between conduct and referential standard (Bandura, 1986). Martin et al. (2002) argued that social cognitive theory of gender development lacks “motivational underpinnings” because “*acquisition of gender role knowledge and standards of conduct are not, in themselves, imbued with motivational significance*” (p. 906). This argument rests on their misunderstanding of the locus of the motivator in the self-regulatory process. In self-directedness through personal standards, the motivation resides in the self-approving and self-disapproving reactions, not in the standard. The anticipatory affective self-reactions are the motivating incentives. Ironically, the misplaced critique is most fitting to the prime motivator in cognitive developmentalism (i.e., acquisition of stereotypic gender knowledge itself is not “imbued with motivational significance”).

It is the cognitive developmentalists who face the motivation problem. Given the wide array of motivators known to affect gendered behavior, the notion that gendered lives are ruled by an intrapsychic automotivator to match one’s gender stereotype is ill-equipped to carry the motivational burden. Just as having a conception of one’s own gender does not drive one to personify the stereotype it embraces, nor does the self-conception of gender necessarily create positive valuation of the attributes and roles traditionally associated with it. Both the valuation of certain attributes and roles and the eagerness to adopt them are influenced by the value society places on them. Martin et al. (2002) spoke of children being “*intrinsically motivated*” (p. 924) at the outset to build gender schemas but, as previously noted, they did not explain the form this intrinsic motivational system takes, its origins, or how it works in the social construction of gender.

While claiming that social cognitive theory lacks “motivational underpinnings,” Martin and her colleagues (Martin, Fabes, Evans, & Wyman, 1999) adopted one of the motivators in social cognitive theory—outcome expectations—as a regulator of gender-segregated play. Children expect greater approval for play with same- than they do with other-sex peers. Differential personal and social sanctions account for gender differences in other spheres of functioning as well (Bussey & Bandura, 1999).

After self-regulatory standards are developed, behavior usually produces two sets of consequences: self-evaluative reactions and external outcomes. They may operate as complementary or opposing influences on behavior (Bandura, 1986). Research on the interplay of personal and social influences has advanced understanding of how individuals manage the many dilemmas they face. They commonly experience conflicts of outcomes when they are rewarded socially or materially for behavior they personally devalue. When self-devaluative consequences outweigh the force of external incentives, they have little sway. However, if the force of social pressures outweigh self-sanctions, the result is resigned

compliance. Another type of conflict of outcomes arises when individuals are punished for activities they value highly. The relative strength of self-approval and external censure determine whether the courses of action would be pursued or abandoned. For example, a person with an egalitarian gender standard may accommodate to inequitable gender practices, or he or she may resist pressure to conform to conventional gender norms. Thus, social cognitive theory not only expands the types of motivators but examines how they operate in concert in complementary or conflicting forms in the motivation and regulation of behavior.

Perceived Self-Efficacy in Gender Development and Functioning

Our previous publication (Bussey & Bandura, 1999) reviewed in some detail the diverse motivators governing gender development and functioning. Martin et al. (2002) asserted that social cognitive theory lacks a motivational system because perceived self-efficacy alone does not tell very young children which gender domains are appropriate for them. This assertion ignores the diverse types of motivators encompassed by social cognitive theory and fails to recognize the temporal course of self-efficacy development. It is parents, not efficacy beliefs, who shape and tell infants and toddlers what is appropriate for their gender. They do so by structuring environments for them and reacting differentially to gender-linked behavior. However, as young children gain self-knowledge and self-appraisal skills, the beliefs they form about their capabilities come to exert directive influence on their developmental trajectories (Bandura, 1995, 1997).

Newborns do not arrive with a sense of self. It is socially constructed through transactional experiences with the environment. In the social cognitive theory of the origins of personal agency (Bandura, 1997), a sense of personal agency is achieved through a developmental progression. The first phase involves infants’ perception of causal relations between environmental events. The second phase involves recognition that actions produce outcomes. In the third phase of agency development, actions are perceived as part of oneself, and one is the agent of those actions. This further understanding shifts the perception of agency from action causality to personal causality. The differentiation of oneself from others is the product of a more general process of the construction of the self.

Because of their limited cognitive skills and experience, young children have sketchy knowledge of their capabilities. They have difficulty in attending simultaneously to multiple sources of efficacy information, in distinguishing between important and minor indicants of capability, and in processing efficacy information distributed over long stretches of time (Bandura, 1997). Effective use of social comparative information for self-appraisal lags behind perception of ability rankings (Morris & Nemcek, 1982). With further cognitive development through exploratory experiences, modeling, and direct tutelage, children improve their self-appraisal skills. The self-knowledge gained by applying their self-appraisal skills enables them to judge their efficacy on their own as guides for their actions in whatever situations may arise. As in the case of social modeling, the influential role of self-efficacy beliefs in gender development and functioning is amply documented empirically. Martin et al. (2002) dismissed the role of self-efficacy beliefs on the grounds that infants are not metacognitive self-appraisers. Social cognitive theory never claimed they were. How-

ever, the theory specifies how young children gain proficiency in self-appraisal with experience and come to regulate their motivation and actions by their beliefs of personal efficacy.

Diverse programs of research (Bandura, 1995, 1997) are providing new insights into the familial sources of children's self-efficacy; the role of peers in the broadening and validation of self-efficacy; how educational systems serve as an agency for cultivating self-efficacy; the growth of self-efficacy in the fulfillment of parental, occupational, and other roles of adulthood; and the reappraisals of self-efficacy with advancing age. These studies, spanning the life course, are adding to the understanding of how gender enters into the formation and renewal of self-efficacy throughout these different periods of life. In mediational analyses, perceived self-efficacy operates as one of the mechanisms through which gender orientation and status are linked to different modes of functioning (Hackett, 1985; Joo, Bong, & Choi, 2000).

In social cognitive theory, perceived self-efficacy operates within a network of sociocognitive determinants, with clearly specified processes through which they work. The publication *Self-Efficacy: The Exercise of Control* (Bandura, 1997) devotes an entire chapter to the four processes through which belief in one's efficacy affects self-development, adaptation, and change. They include cognitive, affective, decisional, and motivational processes. With regard to cognitive effects, self-efficacy beliefs affect attentional, construal, and memory processes. In the affective domain, coping self-efficacy beliefs affect the quality of emotional life and vulnerability to stress and despondency. With regard to the decisional effect, belief in one's efficacy shapes the course of development during formative periods by the types of activities and social environments individuals select. Such choices determine which of their potentialities individuals develop, the types of options that are foreclosed, and those that remain realizable. Among the choices that shape life paths, those that center on occupational choice and development are of special import. Efficacy beliefs influence the career options individuals seriously consider, the interest they have in them, how well they prepare themselves educationally, and their staying power in challenging occupational pursuits (Bandura, 1997; Lent, Brown, & Hackett, 1994). Analysis of gender differences reveals that perceived occupational self-efficacy predicts traditionality of career considerations in childhood (Bandura, Barbaranelli, et al., 2001).

In the motivational domain, efficacy beliefs affect level of motivation by their effect on different classes of motivators—goals and aspirations, the outcomes expected for different courses of action, and the construal of environmental supports and impediments. Martin et al. (2002) claimed that perceived self-efficacy supersedes all other classes of motivators posited by social cognitive theory. In fact, analysis of multifactor causal structures verifies that perceived self-efficacy influences, but operates in concert with, other classes of motivators rather than supersedes them all (Bandura, 1997).

Integration of Individual and Social Structural Determinants in Social Cognitive Theory

As previously noted, gendered functioning is the product of the dynamic interplay of intrapersonal, behavioral, and social influences operating within interdependent societal subsystems composed of parental, educational, peer, mass media, occupational, and institutional players. Vast bodies of evidence document the

effect of these diverse sources of influence on gender roles and functioning at different phases of the life course (Bandura, 1997; Bussey & Bandura, 1999).

A comprehensive theory of the formation and quality of gendered lives must encompass the powerful influence of sociostructural forces. Consider some examples of institutional constraints. Women were denied voting rights until 1928 in the United States and until 1945 in France, the bastion of egalitarianism; women were disallowed property rights; lost custody of children to husbands even though child caretaking is supposedly not men's inherent nature; were denied equitable educational opportunities; were barred entry into prestigious universities such as Yale until 1969; were prohibited as faculty members at Harvard from entering the faculty club through the front entrance; were denied equal pay for comparable work; were impeded in their efforts to secure occupational advancements at upper organizational ranks; and were refused memberships in clubs in which social networking and business transactions promote occupational successes. These inequalities did not arise because women were bent on matching their gender schema.

Social cognitive theory rejects a duality between personal agency and a reified social structure disembodied from the authorized implementers of the rules and practices of the social systems over which they preside (Bandura, 2001). The theory posits a dynamic interplay between personal and sociostructural influences within the larger societal context. People are producers of social systems, not just products of them. Global applications of social cognitive theory are altering discriminatory gender social norms and practices in societies in which women are subordinated and are enabling them to take the steps to improve their educational, social, familial, and reproductive lives (Bandura, 2002a, in press).

In other spheres of functioning, the field of developmental psychology has, in large part, moved away from the insulated cognitivism in which the cognitive–developmental theory is rooted. The influential role of sociostructural factors in bringing about developmental change, which had been long neglected, is now increasingly embodied in developmental theorizing and research. Martin et al. (2002) acknowledged the social disembodiment in the theorizing about gender development: “And, true to the heritage of this theory, there has been more interest and emphasis on internal processes than on biological or social inputs to gender development” (p. 913). It is now nearly 40 years since Kohlberg (1966) formulated the cognitive–developmental theory of gender development. However, over these decades, whatever amended form the theory takes, essentially the same debate gets recycled around some version of the same intrapsychic determinant and its causal priority problem. Is gender permanency, gender stability, or merely gender identity the driving force of gender development? Is there a methodological remedy for the troublesome temporal ordering that gender discrimination, preference, and behavior precede the emergence of a sense of self? Cognitive developmentalists would do well to expand their perspective beyond the childhood years and to encompass in their conception of gender the diverse sources and modes of gendered practices operating in the larger societal context.

Gender development and functioning are socially situated, richly contextualized, and conditionally manifested. Entrenched institutional constraints, pervading normative structures, widespread symbolic modeling of gendered lifestyles, and intricate incentive systems are active players in the social construction of

gender. Explanation of how focal societal subsystems contribute interdependently to this process provides a fuller understanding of how people develop and live their gendered lives than does placing a heavy explanatory burden on knowledge of one's gender category membership and a drive to match the stereotype associated with it.

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Received June 2, 2003

Revision received September 26, 2003

Accepted October 24, 2003 ■