Vygotsky, Piaget, and Bandura: Perspectives on the Relations between the Social World and Cognitive Development

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Vygotsky
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Abstract
In this article we examine the theories of Vygotsky, Piaget, and Bandura as they deal with the relation between the social world and cognitive development. The prevailing belief is that these theories are quite different from each other. We consider a number of factors that contribute to this belief. One is the easy categorization afforded by current 'world views' in psychology – root conceptualizations of the nature of development that are believed to be incompatible. A second factor is that although the theories are far more complex than much of the empirical work based on them, researchers have concentrated on relatively narrow aspects of each theory, in the process magnifying differences between them. We conclude that although the theories have more in common than simple categorizations in much of the research literature suggests, some basic differences nonetheless exist in each theorist's conceptualization of the relations between social and individual factors in development.

Scholars have long been interested in the relations between social factors and cognitive development. In this article, we examine the ways in which three influential theorists (Vygotsky, Piaget, and Bandura) have conceptualized these relations. A number of scholars have pointed to differences between their theoretical positions [Altman and Rogoff, 1987; Azmitia and Perlmutter, 1989; Kuhn, 1978; Mueller and Cooper, 1986; Tudge and Ro-
goff, 1989], and, indeed, the dominant tendency in the field has been to emphasize such differences.

The following contrasts are typically drawn in contemporary reviews. Vygotsky believed that development, a social process from birth onwards, is assisted by others (adults or peers) more competent in the skills and technologies available to the culture, and that development is fostered by collaboration within the child’s zone of proximal development. Piaget believed that children are like scientists, working alone on the physical, logical, and mathematical material of their world to make sense of reality. To the extent that they can benefit from interaction, it is with peers rather than with adults, the dominant mechanism driving development being ‘cognitive conflict’. Bandura believes that children primarily learn through imitation of models in their social environment and that the primary mechanism driving development is observational learning. Although there is some truth in each of these statements, their simplistic nature blinds us to the richness of each theory. Only by eschewing an approach that seeks to dichotomize and differentiate, and instead examining the subtleties of these positions, can we understand what the theories have in common, as well as what truly differentiates them.

Among the reasons for a focus on differences is that it facilitates categorization of theorists into a neat classificatory system. One influential categorization is that proposed by Pepper [1942]. His view that theories can be divided into four ideal types of paradigms, or ‘world views’, has had a marked impact on the field [Altman and Rogoff, 1987; Kuhn, 1978; Mueller and Cooper, 1986; Overton, 1984; Overton and Reese, 1973; Reese and Overton, 1970; Valsiner and Winegar, 1992]. Each theory considered here has been classified as reflecting a different world view — social-learning theory into the ‘mechanistic’ paradigm, Piaget into the ‘organismic’ paradigm, and Vygotsky into the ‘contextualist’ paradigm, with each paradigm regarded as incompatible with the others.

Categorizations of this sort are useful, not least because world views incorporate different root metaphors and assumptions that theories, to a greater or lesser extent, illustrate. However, a disadvantage is that similarities across theories may be disguised and intellectual linkages ignored. For example, social-learning theory is described as dealing with observable external behavior and events, with little attention paid to Bandura’s discussion of the internal processes that underlie modeling (self-efficacy or information-processing capacities, for example) or to the role Bandura gives to culture [1989b]. The problem is complicated by the fact that theories themselves develop, often in light of critical reactions to earlier formulations and changing intellectual contexts. In Bandura’s case, this has meant that parts of his theory, originally placed into the mechanistic camp [Kuhn, 1978], more recently have been described as illustrating organismic [Altman and Rogoff, 1987] or contextualist [Zimmerman, 1983] world views.

Interpreters of Piagetian theory rarely mention social interaction and its impact on development and instead emphasize the theory’s ‘biological flavor’ [Brainerd, 1978; Flavell, 1963]. Little attention has been paid to those aspects of Piaget’s writings that deal with children’s active involvement in their social world, although as Furth [1969] has noted, Piaget’s interest in biological foundations of development by no means precludes a concern with the role of the social world.

Because Vygotsky emphasized social factors in development, interpreters have tended to ignore his discussions of the profound impact of maturational factors on development
(factors that set limits within which social interaction may be effective), or his statements regarding imitation; for example, ‘... imitation is the source of instruction’s influence on development ... Instruction is possible only where there is potential for imitation’ [Vygotsky, 1987, pp. 210–211].

Our claim, then, is that most attention is paid to aspects of theories that differentiate them from one another, and that similarities in perspective almost by definition cannot exist, since the underlying paradigms, or world views, are held to be essentially incompatible. A number of researchers have attempted to draw on perspectives representing several world views [Mueller and Cooper, 1986], or viewed different parts of a theory as reflecting different camps [Altman and Rogoff, 1987]. For the most part, however, scholars have tended to agree with Pepper’s dictum that ‘eclecticism is confusing’ [Pepper, 1942, p. 104], and to the extent that integration has been attempted, it has been at the expense of redefining the contextualist view as falling within organicism or, according to Overton [1984], forcing a compromise between the organismic and mechanistic world views by stripping from the latter its basic assumptions.

Moreover, the theorists share a basic aim – to understand development. It thus makes sense first to examine the three theories in the context of the intellectual traditions in which they developed.

Vygotsky was well aware of contemporary intellectual developments in both Europe and North America and often cited European and American philosophers and psychologists [Kozulin, 1990; Rosa and Montero, 1990]. Many of Vygotsky’s intellectual debts are less easy to trace now than when his work was first published; in the current Russian editions of his collected works, many passages originally attributed to others have now had the quotation marks removed [Valsiner, pers. commun., 1991]. Among those Vygotsky cited, however, he explicitly acknowledged the debt he owed to Janet for ideas regarding the social nature of development [Van der Veer and Valsiner, 1988]. Vygotsky also referred often to Piaget, critically when Piaget appeared to downplay social influences on development [Vygotsky, 1987], approvingly at other times: ‘In part ... Piaget demonstrates ... the huge role played by social factors in the development of the structure and functions of child thought’ [Vygotsky, 1984, p. 86].

Piaget’s works also contain many references to the views and research of his intellectual contemporaries and predecessors, not only in Europe but also North America. Not surprisingly, some of those Piaget cites approvingly (notably Janet, Claparède, and Baldwin) were also well known to Vygotsky. The publication of Vygotsky’s work in English [Vygotsky, 1962] also received critical attention from Piaget [1962a; Piaget and Inhelder, 1969]. Moreover, Piaget shared with Vygotsky certain philosophical roots. For example, Piaget transformed a Kantian-inspired view of epistemology into one essentially dialectical in nature, probably under the inspiration of Hegel [Wartofsky, 1983]. Vygotsky’s
path to dialectics also started from Hegel; although it took a different route, via Marx and Engels, Piaget and Vygotsky clearly shared the belief that development constitutes a dialectical process [Wartofsky, 1983; Wozniak, 1975, 1987; Youniss, 1978].

Bandura's intellectual roots are not as clearly intertwined with those of Vygotsky and Piaget. However, both Bandura and Vygotsky were highly critical of simple stimulus-response models derived from behaviorism and mechanistic materialism. Both recognized the crucial impact of mediating factors—primarily cognitive (mental representations and information-processing abilities) for Bandura, and cultural symbols (language, tools, and institutions) for Vygotsky. Bandura briefly discussed Piaget's work on cognitive development, although he criticized Piaget's emphasis on the child's activity with the physical and logico-mathematical world and his perceived disregard of the impact of the social world [Bandura, 1986]. In part, Bandura's work developed in opposition to (and thus was influenced by) Piaget's view of cognitive development. However, in common with both Piaget and Vygotsky, Bandura believes that children do not passively imitate models in their social world, but are cognitively active in this process.

Similarities of perspective and shared intellectual backgrounds provide somewhat indirect evidence of compatible thinking. A more specific instance of intellectual influence is that provided by Baldwin [Cairns, 1992]. Vygotsky approvingly cited Baldwin [Valsiner and Van der Veer, 1988] for stressing the role of social factors in development. For example, Baldwin declared that the task of genetic psychology was to 'specify those forms of social interaction which enable individuals to develop' [Baldwin, 1913; quoted in Mugny and Carugati, 1989, p. 3]. He also employed the notion of sociogenesis ('social heredity') to describe how a child internalizes relevant influences from the social world as personality and understanding develop [Baldwin, 1895/1906]. Vygotsky's argument that interpersonal processes are transformed into intrapersonal characteristics mirrored Baldwin's (1895/1906) view: 'Imitation] enables me to pass from my experience of what you are, to an interpretation of what I am; and then from this fuller sense of what I am, back to a fuller knowledge of what you are' [p. 323].

Piaget's descriptions of the 'circular reactions' that occur in the sensorimotor stage are explicitly related to Baldwin's earlier work, and the very concepts of assimilation, accommodation, and equilibration are all to be found in Baldwin's [1895/1906] writings. Piaget [1975/1985] argued explicitly, toward the end of his life, that 'as J.M. Baldwin saw quite clearly, the formation of the self is connected to early interpersonal relationships and especially to imitation' [p. 76].

Bandura does not cite Baldwin directly, but the latter clearly articulated the importance of social models for the developing child's behavioral functioning. Rosenthal and Zimmerman [1978] draw explicit connections between Bandura's emphasis on modeling influences and Baldwin's description of the process of imitation. For example, Baldwin [1895/1906] wrote:

'It is not only likely—it is inevitable—that he [the child] makes up his personality, under limitations of heredity, by imitation out of the 'copy' set in the actions, temper, emotions, of the persons who build around him the social enclosure of his childhood [p. 340].

Both Baldwin and Bandura concentrated great effort on the explanation of the central processes that, as they develop, mediate and transform simple perceptions of imitated influence.
The intellectual worlds inhabited by Vygotsky, Piaget, and Bandura were thus not entirely separate from one another. Nonetheless, local social, intellectual, and historical contexts in which the theories developed also deserve consideration. Vygotsky developed his views in the context of building a psychology appropriate to the new Soviet state, one that was explicitly Marxist in orientation. As Kozulin [1990] points out, Vygotsky’s Marxism was neither narrowly doctrinaire nor based on a ‘mechanistic materialist’ base of simple stimulus-response propositions. Nevertheless, dialectical materialist Marxist philosophy was without doubt an influence of major importance to Vygotsky [Blanch, 1990; Lee, 1985; Rosa and Montero, 1990; Scribner, 1985; Wertsch, 1985].

Piaget’s and Bandura’s theories also developed in the context of dissatisfaction with the simple stimulus-response mechanisms of learning theory. Although he did not ignore social factors, Piaget’s intent was to explain how children come to know their world in the course of their own actions on it. He clearly did not regard them as ‘blank slates’ waiting to be written on by those around them, as the following passage reflects:

In the common view ... the content of intelligence comes from outside, and the coordinations that organize it are only the consequences of language and symbolic instruments.

But this passive interpretation of the act of knowledge is in fact contradicted at all levels of development [Piaget 1970/1983, pp. 103–104].

Bandura’s theory also developed in opposition to the views expressed by contemporary learning theorists, although, unlike Piaget, Bandura was more interested in building on this base than developing an entirely different theoretical structure. His reformulation of traditional learning theory is profound, arguing for bidirectional reciprocal determinism incorporating within a ‘triadic’ model individual characteristics (such as beliefs, goals, expectations, and rule-making abilities), as well as the individual’s behavior and the social environment [Bandura, 1989a, b]. This model is far removed from one based on simple unidirectional stimulus-response connections. Rather than de-emphasizing social factors, as Piaget did, Bandura sought to incorporate them into a radically modified version of learning theory.

Commonalities in Conceptualizing the Role of Social Factors

The theories of Vygotsky, Piaget, and Bandura thus developed in intellectual contexts that were shared in some ways, although they differed in others. Resulting similarities in theoretical perspectives include the presupposition that the social world plays a major role in children’s cognitive growth. Piaget paid less explicit attention to social factors than did Vygotsky or Bandura, and Vygotsky was more concerned than the others with the interrelations of macro- and micro-social influences. Yet all three treated social influences partly at the level of cultural and historical contexts (macro factors) and partly at the level of interpersonal (micro) interactions.

Vygotsky

Vygotsky was clearest regarding the links between social factors of a cultural and historical nature and those of an interpersonal nature. Institutions, tools, and symbol systems are the products of human beings, developed in various ways by different cultures over historical time. Vygotsky [1983] described the complex dynamics of historical and cultural development as follows:
Culture creates special forms of behavior, changes the functioning of mind, constructs new levels in the developing system of human behavior ... In the process of historical development, a social being changes the means and methods of his behavior, transforms natural inclinations and functions, develops and creates new, specifically cultural, forms of behavior [pp. 29-30].

From the Vygotskian perspective, interpersonal interactions can only be understood with reference to these historical and cultural forms. For example, the nature and processes of interaction between an adult and a child in a school setting cannot be fully understood without reference to the meaning imparted by that historically and culturally organized context (school), to the tools of learning, and to the meaning that the interaction itself has for the participants. Thus, social and cultural institutions, technologies, and tools channel the nature and focus of interpersonal interactions, which in turn mediate the development of children's higher mental functions (such as thinking, reasoning, problem-solving, mediated memory, and language).

According to Vygotsky's [1981] 'general genetic law of cultural development', 'any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane' [p. 163]. Vygotsky argued that rather than deriving explanations of psychological activity from the individual's characteristics, the unit of analysis should be the individual engaged in social activity. Learning from others more competent in culturally appropriate skills or technologies is a prime example. Criticizing Piaget's contemporary position that children's development must precede learning, Vygotsky [1978] argued that 'learning is a necessary and universal aspect of the process of developing culturally organized, specifically human psychological functions ... [T]he development process lags behind the learning process' [p. 90].

However, Vygotsky also believed that alongside the social-cultural-historical influences on development was a 'natural line' corresponding to purely biological changes:

Within a general process of development, two qualitatively different lines of development, differing in origin, can be distinguished: the elementary processes, which are of biological origin, on the one hand, and the higher psychological functions, of sociocultural origin, on the other ... The history of the development of the higher psychological functions is impossible without a study of their prehistory, their biological roots, and their organic disposition [Vygotsky, 1978, p. 46].

Vygotsky believed the development of speech to be paramount in the development of higher mental processes, but he also considered the use of tools other than language to be important both in phylogenetic and ontogenetic development. Vygotsky's discussion of grasping, for example, illustrates how mother-infant interaction helps the child to understand the signification of gesture well before the child is capable of language use. Thus, Vygotsky [1978], describing children's development in the first year of life, argued that 'the child's system of activity is determined at each specific stage both by the child's degree of organic development and by his or her degree of mastery in the use of tools' [p. 21].

The 'natural' line of 'organic development' (maturation) does not simply disappear when the mediated or 'cultural' line appears:

A normal child's socialization is usually fused with the processes of his maturation. Both lines of development - natural and cultural - coincide and merge one into the other. Both series of changes converge, mutually penetrating each other to form, in essence, a single series of formative socio-biological influences on the personality [Vygotsky, 1983, p. 22].

Elsewhere Vygotsky [1978] argued:
The zone of proximal development defines those functions that have not yet matured but are in the process of maturation, functions that will mature tomorrow but are currently in an embryonic state. These functions could be termed the 'buds' or 'flowers' of development rather than the 'fruits' of development [p. 86].

The influence of the social world is thus restricted to bounds that are set by the child's previous developmental course and by limits that are defined partly by the child's present development state and what can be achieved in collaboration: 'Instruction is only useful when it moves ahead of development. When it does, it impels or wakens a whole series of functions that are in a stage of maturation lying in the zone of proximal development' [Vygotsky, 1987, p. 212]. Instruction or assistance clearly has an upward bound that is determined by the child's potential at that time and by the nature of the collaboration:

We said that in collaboration the child can always do more than he can independently. We must add the stipulation that he cannot do infinitely more. What collaboration contributes to the child's performance is restricted to limits which are determined by the state of his development and his intellectual potential [Vygotsky, 1987, p. 209].

The zone of proximal development is thus the difference between what a child can accomplish independently and what he or she can achieve in conjunction with another, more competent person. The zone is not some clear cut space that exists independently of the process of joint activity itself, however. Rather, it is created in the course of social interaction:

We propose that an essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of developmental processes that are able to operate only when the child is interacting with people in his environment and in collaboration with his peers [Vygotsky, 1978, p. 90].

Vygotsky did not focus on peer collaboration, however, concentrating for the most part on adult guidance of development. This focus is hardly surprising, as adults are typically more skilled at the task or problem and more easily able to provide assistance appropriate to the child's current level of thinking [Ellis and Rogoff, 1982, 1986; Gauvain and Rogoff, 1989; Radziszewska and Rogoff, 1988].

Vygotsky's approach has been termed 'coconstructionist' [Tudge et al., 1991; Valsiner, 1987] to capture the mutual and interwoven links he drew between individual and social factors. Vygotsky was adamant that the only way to guard against reductionism of the individual to the social or the social to the individual was to use a unit of analysis that encapsulated both. Word meaning was one such unit, he argued [Vygotsky, 1987]; others, used by his followers, have included 'tool-mediated action' and 'goal-directed action' [Leont'ev, 1981; Wertsch, 1985, 1991; Wertsch and Sammarco, 1985; Tulviste, 1991; Zinchenko, 1985]. Meanings, tools, and goals all necessarily relate the individual and the social world of which the individual is a part, for they are all formed in a sociocultural context. Understanding the use of tools (psychological or physical) is jointly constructed by the developing child and by the culture in which the child is developing, with the assistance of those who are already more competent in the use of those tools and in culturally appropriate goals [Tudge et al., 1991]. These units of analysis therefore integrate the micro-sociocultural contexts of interaction with the broader social, cultural, and historical contexts that encompass them.

Piaget

One oft-mentioned difference between Piaget and Vygotsky is that Piaget began with the individual child who progressively becomes social, whereas for Vygotsky the child
is social from the start [Tudge and Rogoff, 1989]. In fact, the Piagetian infant is in some senses maximally social, making no distinction between self and outside world. Piaget's interest in the social world was primarily with social influence at the micro-level, or interpersonal contact. Piaget noted this influence from 3 or 4 months of age, when infants begin to imitate the gestures of adults who have just imitated them – a 'prefiguration of representation' [Piaget and Inhelder 1966/1969, p. 55]. Piaget and Inhelder [1966/1969] cited Escalona approvingly:

Contact with persons ... becomes more and more important, heralding a transition from contagion to communication (Escalona). Even before the formation of a self complementary to and interacting with others we witness the elaboration of a whole system of exchanges through imitation and the reading of gestural signs [p. 24].

Indeed, for Piaget the very concept of accommodation is inherently linked to imitation from the first year of life. Before the end of the sensorimotor stage, a social model may act as a source of imitation even when it is no longer present. This 'deferred imitation' is considered the product of new representational abilities [Piaget, 1962b].

Piaget also described situations in which moral development and the development of rule-based play occur within the framework of peer social interaction and cooperation [Piaget 1932/1965]. Interaction between peers can be seen as both a cause and a consequence of the slow decline in childhood egocentrism that occurs between the ages of 3 and 7 [Piaget, 1923/1959]. Social factors of an interpersonal nature play an even larger role in children's development once children are able to take another's perspective into account [Piaget, 1945/1977], and peer social relations take on a key role in adolescence. Indeed, 'the organization of formal structures must depend upon the social milieu as well ... A particular social environment remains indispensable for the realization of [the possibilities accorded by the maturation of the nervous system]' [Inhelder and Piaget, 1955/1958, p. 337].

Piaget did not solely concern himself with social factors of an interpersonal nature, however. He argued, for example, that moral judgments are influenced by interactions with both peers and adults (the latter providing the 'morality of constraint' – of obeying a rule out of respect for adult authority), as well as by the historically formed nature of social institutions. Piaget distinguished 'primitive' from 'modern' societies at least in part by the former's requirement for absolute compliance of children to adult demands [1932/1965]. Piaget [1970/1983] also accepted that different cultural practices (such as the presence or absence of formal schooling) can prevent adolescents from reaching formal operational thinking, as well as retard the rate at which children pass through earlier stages of development. Similarly, he believed that historical changes within a culture, such as the introduction of more 'modern' approaches to schooling, are likely to affect the nature of adult-child and child-child interpersonal relations [Piaget, 1970].

Of the three theorists, only Piaget argued that peer interaction is both qualitatively different from and superior to adult-child interaction in facilitating cognitive growth. Under conditions of unequal power, a child may well accept the adult's view but is unlikely to undergo the cognitive restructuring necessary for cognitive development [Piaget, 1945/1977, 1948/1959]. By comparison, when a peer has a different perspective, the equal power relations allow for argument and subsequent development:
Criticism is born of discussion, and discussion is only possible among equals; cooperation alone will therefore accomplish what intellectual constraint [unquestioning belief in the adult’s greater knowledge] failed to bring about [Piaget, 1932/1965, p. 409].

Piaget thus believed that the development of rule-based play and perspective-taking both occur in interaction with peers rather than adults.

In his early work, Piaget [1923/1959] argued that children below the age of 7 are unlikely to benefit from social interaction, given the egocentric nature of preoperational thought. Subsequently, however, in the third edition of *The Language and Thought of the Child*, Piaget modified that view, stating that even during the preoperational stage, children can engage in the sort of discussion likely to lead to development. During this period, the child ‘fluctuates between two poles, the monologue – individual or collective – and discussion or genuine exchange of ideas’ [Piaget, 1948/1959, p. 258]. The ability to engage in discussion and argument helps children move beyond the preoperational stage.

Piaget accepted that adults aid children’s development, acting as ‘the source of educational and verbal transmissions of cultural elements in the cognitive sense’ [Piaget and Inhelder, 1966/1969, p. 116]. Moreover, Piaget [1928/1977] believed that teacher-child interaction was useful ‘to the extent that the intelligent teacher [is able] to efface him or herself, to become an equal and not a superior, to discuss and to examine, rather than to agree and constrain morally ...’ [p. 231]. Nevertheless, Piaget emphasized the importance of peer, rather than adult-child, interaction.

It is thus clear that Piaget believed that social factors have a major role to play in development, both at the interpersonal and historical-cultural levels. He made this belief apparent as early as 1928: ‘Social life is a necessary condition for the development of logic. We thus believe that social life transforms the individual’s very nature’ [Piaget, 1928/1977, p. 239]. Toward the end of his life, he returned to the same theme, declaring that ‘the most remarkable aspect of the way in which human knowledge is built up ... is that it has a collective as well as an individual nature’ [Piaget, 1967/1971, p. 359].

**Bandura**

Social influences, not surprisingly, play a large role in a theory originally labeled ‘social learning’. However, Bandura does not posit unidirectional influences of social factors. His basic theoretical construct of ‘triadic reciprocal determinism’ treats social factors as influencing and being influenced by personal and behavioral determinants:

Personal and environmental factors do not function as independent determinants; rather, they determine each other. People create, alter, and destroy environments. The changes they produce in environmental conditions, in turn, affect their behavior and the nature of future life [Bandura, 1986, p. 23].

Bandura views the social determinants of development as occurring by means of observation:

Fortunately, most human behavior is learned by observation through modeling. By observing others, one forms rules of behavior, and on future occasions this coded information serves as a guide for action ... The models who figure prominently in children’s lives ... serve as indispensable sources of knowledge that contribute to what and how children think about different matters [Bandura, 1986, pp. 47, 486].

However, Bandura has also enumerated the various mediating cognitive capabilities that help determine the observer’s subsequent development and action. He has increasingly emphasized cognition, with mental representations and information-processing abilities viewed as mediating links between stimulus and response. As early as 1971, Bandura
wrote: ‘In social learning theory observers function as active agents who transform, classify, and organize modeling stimuli into easily remembered schemes rather than as quiescent cameras or tape recorders that simply store isomorphic representations of modeled events’ [p. 21]. The emphasis on cognition is reflected, perhaps belatedly, in a new terminology – ‘social cognitive’ theory [Bandura, 1986], replacing ‘social learning’ theory [Bandura, 1977]. Other mediating factors (besides cognition) that Bandura considers critical include biology and maturation: ‘Physical structure and sensory and neural systems affect behavior and impose constraints on capabilities’ [1989b, p. 3].

Thus, Bandura and his followers have argued that social influences can only operate within the constraints imposed by the ‘hard wiring’ of the psychological system at its current level of maturation [Bandura, 1989b; Rosenthal and Zimmerman, 1978; Zimmerman, 1983]. Bandura also believes that the consequences of the observer’s own behavior affect learning and motivation for future action. Bandura’s most recent emphasis on the importance of personal self-efficacy as a determinant of behavior also signals a shift toward heightened consideration of individual factors in social-interactive contexts [Bandura, 1989a; Wood and Bandura, 1989].

Bandura also recognizes the impact of the broader sociocultural context on development. For example, in discussing the development of psychosocial functioning, Bandura [1989b] argues that ‘diversity in social practices produces substantial individual differences in the capabilities that are cultivated and those that remain underdeveloped’ [Bandura, 1989b, p. 1]. Similarly, Bandura [1986] argues with regard to the development of sex roles, ‘A comprehensive theory of how roles get linked to gender must extend well beyond gender conception to a social analysis of how institutional structures and sanctions shape gender roles’ [p. 98]. Elsewhere, he states, ‘Proximal social influences of parents, teachers, and peers, as well as distal social and symbolic influences from mass media and cultural institutions all serve to promote gender development’ [Bussey and Bandura, 1992, p. 1237].

Bandura believes that peers can be useful models: “Peers serve several important efficacy functions. Those who are most experienced and competent provide models of efficacious styles of thinking and behavior. A vast amount of social learning occurs among peers” [Bandura, 1989b, p. 45]. However, unlike Piaget but in common with Vygotsky, Bandura does not believe that peer interaction is necessarily more effective than child–adult interaction, arguing that facilitation of cognitive development depends primarily on the model’s greater competence and perceived qualities [1986, 1989b]. Whether the model is a peer or an adult is therefore less important for Bandura than is the attitude of the child toward the model, the way in which the model is treated (whether rewarded for his or her behavior), and the personal characteristics of the model.

**Manifestations of the Theories in Research**

We have argued that there are some similarities in the theories of Vygotsky, Piaget, and Bandura than are apparent from the superficial contrasts and differences between them that are often drawn. One reason, it was suggested, is a tendency on the part of interpreters to try to place theorists into easily differentiable categories. A second reason, on which we concentrate in this section, is that empirical research and the theory on which it is based do not necessarily mesh. In particular, the ways in which these theories have
been operationalized in research does not, in many instances, live up to the complexity afforded by the theories themselves. This fact is perhaps not surprising, given that few pieces of empirical research are intended to test more than a few hypotheses derived from the theory on which the research is based. Nevertheless, in undertaking research, proponents of the theoretical positions examined here have rather consistently stressed particular aspects of the theories, aspects that serve to emphasize dissimilarities between them.

Research in the Tradition of Vygotsky

Vygotsky himself [1978] argued that there should be a close interrelation between theory and methodology:

In general, any fundamentally new approach to a scientific problem inevitably leads to new methods of investigation and analysis. The invention of new methods that are adequate to the new ways in which problems are posed requires far more than a simple modification of previously accepted methods [p. 58].

For the most part, scholars working in the Vygotskian tradition have focused their attention on children in collaboration with adults [Cole, 1985; Edwards and Mercer, 1987; Newman et al., 1989; Tharp and Gallimore, 1988; Valsiner, 1984, 1987; Wertsch, 1979; Wertsch and Hickmann, 1987; Wertsch et al., 1984; Wertsch and Sammarco, 1985]. A distinguishing characteristic of this research is the fact that at least as much attention is paid to the processes of interaction as to the consequences of that interaction. This emphasis is exemplified in the approach taken by Wertsch and his colleagues examining mother-child interaction in the course of solving model-copying problems or by Valsiner’s [1984, 1987] study of the ‘co-construction’ of culturally appropriate mealtime behavior. Wertsch [Wertsch, 1985; Wertsch and Hickmann, 1987; Wertsch et al., 1984; Wertsch and Sammarco, 1985] argues that the immediate results of the collaboration (the problem solution) are less important than the ways in which mothers and their children arrive at a solution. These ways vary as a function of sociocultural factors, such as whether or not the mothers have the goal of error-free solution [Wertsch et al., 1984], and the extent of direct or indirect assistance they provide [Wertsch and Sammarco, 1985].

Other Vygotskian scholars have focused on processes of interaction in one type of sociocultural institution – school [Edwards and Mercer, 1987; Newman et al., 1989; Tharp and Gallimore, 1988]. They have described how shared understanding is constructed in the course of joint activity and communication between teachers (those more competent at certain culturally valued tools and skills) and students. As Wertsch [1991] convincingly shows, one of those tools is the mode of discourse valued in school.

Although the majority of Vygotskian scholars have focused their attention on adult-child interaction, there has also been some interest in peer interaction [Forman, 1987, 1992; Forman and Cazden, 1985; Forman and McPhail, in press; Gauvain and Rogoff, 1989; Kol’tsova, 1978; Kol’tsova and Martin, 1985; Martin, 1985; Radziszewska and Rogoff, 1988; Rubtsov, 1981, 1991; Rubtsov and Guzman, 1984–1985; Tudge, 1990, in press]. Forman in particular has fulfilled the Vygotskian requirement of focusing on the ‘history’ of behavior (i.e., examining development over time) by following her dyads across repeated sessions, describing how 9- and 13-year-olds attain joint understanding in the course of collaboration [Forman, 1992; Forman and Cazden, 1985; Forman and McPhail, in press]. Forman has also situated her findings in a macro-social context by examining the presuppositions of interaction within a school context.
Tudge [1990, in press] has argued that full understanding of the effects of peer collaboration on cognitive development can only be gained by focusing on the collaborative processes themselves, and that therefore the most appropriate unit of analysis is the dyad, rather than the individual. His findings indicated that shared understanding attained in the course of interaction was critical in bringing about cognitive change, but that children could be led to regress as well as progress as a consequence of such collaboration. As Bandura might argue, a partner’s competence may be a necessary, but not sufficient, condition in assisting development. Accurate perception of the partner’s greater competence may be critical. Perhaps for this reason, Vygotskian researchers who have contrasted peer and adult-child collaboration have found that children paired with an adult subsequently improved more than those paired with a same-age or slightly older child [Ellis and Rogoff, 1982, 1986; Radziszewska and Rogoff, 1988; Rogoff and Gauvain, 1986].

These studies demonstrate that joint understanding, or intersubjectivity, is arrived at in the course of interaction. They imply that such understanding is crucial for cognitive development. The adult-child literature also illustrates that successful joint completion of a task may occur prior to the child’s being able to complete it alone, thus reversing the view, derived from traditional cognitive psychology and from social cognitive theory, that competence must precede performance. Furthermore, it demonstrates the Vygotskian concept that development first occurs between people and only subsequently is internalized or appropriated by the individual.

However, there are limitations to much of the Vygotskian-inspired research. A number of scholars have called attention to the fact that much of it has focused solely on the effects of interaction at the interpersonal level, with insufficient attention paid to the interrelations between interpersonal and sociocultural levels [Cole, 1985; Luria, 1976; Tulviste, 1991; Wertsch, 1985, 1991; Wertsch et al., 1991; Zinchenko, 1985]. Moreover, Vygotskian research has been insufficiently concerned with the way in which maturation (the ‘natural’ line of development) relates to the interpersonal and sociocultural processes that are the typical foci, despite the fact that this interface is of major theoretical concern.

**Research in the Tradition of Piaget**

Despite the fact that Piaget acknowledged the importance of social factors in development, he did not view them as central enough to set himself or his coworkers the task of exploring their significance. Researchers in the Piagetian tradition have focused on the individual as the unit of analysis and examined the child’s solitary attempts to make sense of the physical, logical, or mathematical world. Work by Piaget himself on the role of social interaction is sparse and confined to a period early in his career [Piaget, 1932/1965, 1923/1959]. It has been left to others to take seriously Piaget’s writings about the impact of the social world on development [Bearison, in press; Furth, 1987; Youniss, 1983]. Scholars working in the Piagetian tradition have taken as their starting point Piaget’s views of the importance of discussion between peers who bring different perspectives to the task. They have undertaken to show that this type of discussion — termed ‘cognitive conflict’ or ‘socio-cognitive conflict’ — is highly beneficial in promoting cognitive development [Ames and Murray, 1982; Doise et al., 1975, 1976; Doise and Mugny, 1984; Perret-Clermont, 1980; Perret-Clermont and Schubauer-Leoni, 1981].

The task most commonly used to illustrate the effectiveness of cognitive conflict has been conservation. Children are pretested individ-
ually to establish their status as conservers or nonconservers and then brought together in pairs or triads. To ensure socio-cognitive conflict (stemming from a difference in perspectives), only one of the partners is a conserver. The children are asked to reach a joint conservation decision — for example, whether there still are equal numbers of objects in two rows after those in one row have been spread further apart. Subsequently, individual posttests are conducted, to assess whether nonconservers have learned to conserve. The outcome, rather than the process of interaction, has typically been the focus, and the unit of analysis is the individual, rather than the dyad.

Results of this experimental procedure have been impressive. After reviewing a variety of such studies, Murray [1982, 1983] concluded that between 80 and 94% of nonconservers attained conservation after having been paired with a conserving peer. Reasons offered by new conservers typically are not simple imitations of those given by their conserving partners [Botvin and Murray, 1975; Perret-Clermont, 1980]. Murray and his colleagues [Ames and Murray, 1982; Murray, 1982, 1983] hold that the mechanism fostering development is the cognitive conflict generated by the initial difference in perspectives. Other Piagetian scholars have argued that ‘opposition of divergent cognitive responses’ is important but that cognitive development still requires ‘social coordination of points of view’ if it is to be successful [Mugny et al., 1984, pp. 127–128], and that mutual collaboration is more effective than conflict per se [Bearison et al., 1986; Glachan and Light, 1982; Light and Perret-Clermont, 1989].

Piaget-inspired research on the effects of peer interaction has focused almost exclusively on social factors at the micro level. Even Piagetian cross-cultural researchers have been primarily concerned with the extent of support for Piaget's theories in different cultures [Dasen and Heron, 1981; Newman et al., 1983]. However, a few researchers have examined interpersonal influences in cultural context. Mackie [1980, 1983] studied the effects of peer interaction among children of European and Pacific Island descent in New Zealand. She argued that 'more attention needs to be paid to [macro] social variables mediating the effect of social interaction on cognitive development' [1983, p. 148], after finding that her Polynesian participants were less likely than Europeans to engage actively in interaction. Tudge [1989] examined social interaction in a mathematical balance beam task among children from the USA and Soviet Union, but found no evidence that growing up in a supposedly more collectively oriented culture affected the nature or results of interaction. Focusing on subcultural differences, Perret-Clermont [1980] examined patterns of social interaction in conservation tasks among children of different social classes, and similarly found little to differentiate them.

Some scholars working within a Piagetian framework have become concerned with the processes, in addition to the consequences, of interaction [Bearison, in press; Bell and Grossen, 1989; Light and Perret-Clermont, 1989; Perret-Clermont and Brossard, 1985; Perret-Clermont et al., 1991]. The focus of these studies is more on collaboration than on conflict, and the concept of intersubjectivity (shared understanding) is invoked as the mechanism relating the interactional processes to the cognitive consequences of the interaction. Perret-Clermont et al. [1991] have argued, in fact, that the unit of analysis should not be the individual at all, but rather the interacting partners. It is interesting to note that they have supported these arguments with reference as much to Vygotsky as to Piaget.
In summary, despite the wealth of Piagetian-inspired research, very few Piagetian scholars have focused on the effects of social interaction on children's development. Those who have done so have been concerned almost exclusively with interpersonal interaction, with little attention paid to influences at the sociocultural level. Even Piagetian scholars interested in cross-cultural issues rarely have been concerned with the ways in which cultural phenomena are expressed at the interpersonal level. Moreover, Piagetian researchers interested in the relations between social interaction and development have focused more on the consequences than the processes of interaction; those who are exceptions to this rule are as likely to invoke Vygotsky as Piaget when considering process variables.

**Research in the Tradition of Bandura**

Similar shortcomings in conducting research that does justice to the complexity of the theory are visible in much of the research addressed to Bandura's theory. Of the three theorists, Bandura has developed the most experimentally rigorous empirical research program. Insistence on experimental control has perhaps limited the scope of such research, relative to the bidirectional and contextualizing nature of the theory. From early in his career, Bandura's stated object was to combine real-life situations with strict experimental control in order to reproduce as closely as possible the social stimuli and responses that occur in real-life situations concerning which the experimenter wishes to make causal statements. However, this does not imply that laboratory experiments should be designed to reproduce real life in toto; if they were, the experimenter would necessarily relinquish the crucial scientific strategy of manipulating one variable while holding others constant, and thereby forfeiting the possibility of establishing precise cause-effect relationships [Bandura and Walters, 1963, p. 46].

Because of the concern with experimental control, and the difficulty of experimentally controlling the influences of macro-social and internal developmental factors, social cognitive researchers in Bandura's tradition have focused largely on aspects of the models and the conditions said to underlie imitation of the model, with less attention given to children's 'internal' development (Bandura's emphasis on personal self-efficacy being a notable exception). Moreover, only recently has much attention been paid to social factors at the macro-level [Bandura, 1990; Bussey and Bandura, 1992].

Most social cognitive researchers influenced by Bandura have explored the ways in which models (typically adults) affect the behaviors of observers (typically children) in an experimental setting. In general, the findings support the contention that modeling has a clear impact on development. Keller and Carlson [1974] showed that 3- and 5-year-olds were capable of learning appropriate social behavior after observing a film of slightly older children modeling such behavior. Similarly, Birch [1980] demonstrated clear changes in children's food preferences based on the influence of same-age peers. Others have found clear modeling effects in the areas of language acquisition [Hood and Bloom, 1979] and moral judgment [Leon, 1984]. Zimmerman and his colleagues [Rosenthal and Zimmerman, 1972; Zimmerman, 1983; Zimmerman and Lanaro, 1974] have studied social influences on the attainment of conservation, arguing that the critical mechanism is not cognitive conflict, as the Piagetians proposed, but rather a type of rule learning in which the less advanced nonconserver models the position of a more advanced partner. However, perceived social power or efficacy appears to mediate the model's influence [Bandura et al., 1967; Davidson and Smith, 1982], and therefore the most effective models tend to be adults.
Research on social interaction inspired by Bandura’s theory has thus most often examined social phenomena in terms of effects on observers’ behavior, demonstrating changes brought about by exposure to particular social models. However, some work has dealt with the effects of being a model [Toner et al., 1978]. Responsibility for being a model of self-restrained behavior resulted in higher levels of restraint, compared to levels in children not given this responsibility. Yet, in both cases (of models and observers), although Bandura [1986] discusses the ‘two-way influence process’ involved in observational learning, experimenters have limited themselves to analyzing results based on the individual as the unit of analysis, rather than focusing on the mutual interplay of interacting partners, an approach that might lend itself more effectively to the study of bidirectionality of effects.

Differences in Conceptualizing the Relation of Social and Individual Factors

We have argued that the three theorists considered are more similar than one might expect based on much of what is written about them. Each theorist takes account of social factors, both at the interpersonal and cultural levels, and each believes that individuals play an active role in their own development, and that maturation plays a critical role. However, the fact that research stemming from these theoretical positions devotes unequal attention to these factors supports the prevailing view that the theories are quite different.

Nonetheless, some genuine differences remain among these theories. Differences not attributable solely to the emphases accorded by the theories’ interpreters. Social influences on development were not central to Piaget [Forman and Kraker, 1985; Piaget, 1970; Tudge and Rogoff, 1989], as they were to Bandura and Vygotsky. Moreover, Bandura’s conceptualization of the nature of the relation between social and individual is critically different from that of Vygotsky (with Piaget closer to the latter than the former).

A useful distinction has been suggested by Valsiner and Winegar [1992] between ‘contextualizing’ and ‘contextual’ approaches. Contextualizing approaches view the social world as an important context in which development occurs; if one changes the context, development is likely to be altered. Nonetheless, individual and context are conceptually distinguished, and one can focus on the effects of the context on a child, or on the effects of a child on his or her context. Contextual approaches, in contrast, make no such distinction, essentially blurring the boundaries between individuals and the contexts in which they are situated.

Vygotsky’s theory is the clearest example of a contextual theory. Individual development cannot be conceived outside a social world, and that social world is simultaneously interpersonal, cultural, and historical. In other words, from a Vygotskian perspective one cannot consider social interaction between peers or between adults and children without understanding the historically formed cultural context within which that interaction takes place. Children’s cognitive development is thus not the product simply of biological maturation, nor of interaction between them and others in their environment (which is the level at which both Piaget and Bandura deal primarily with social factors), but is intricately related to history and culture [Tulviste, 1991]. This relationship is clearly not unidirectional, for cultures develop as a result of human action and interaction. Cole [1985] could thus describe interactions within a child’s zone of proximal development as
being the place ‘where culture and cognition create each other’.

At the interpersonal level as well, Vygotsky’s theory most explicitly build upon a transactional view of development – the view that the influence of interacting partners cannot, either in principle or in reality, be separated [Altman and Rogoff, 1987; Sameroff, 1975]. Scholars working in a Vygotskian framework have consistently argued that social influences are not somehow ‘outside’ the individual, ready to be internalized by the child [Newman et al., 1989; Rogoff, 1990; Shotter, 1989, in press; Tudge, 1992; Tudge et al., 1991; Valsiner, 1987; Wertsch, 1985, 1991; Wertsch and Bivens, in press]. Rather, both partners change in the course of interaction. New understanding, gained through collaboration, is a product of the child’s original understanding, the partner’s different understanding, the child’s difficulties with the task and the ways they are expressed in the course of the interaction, the partner’s responses to those difficulties, and so on. Since this process evolves over time, and each person’s responses depend on what the other has previously done or said, the outcome is one that cannot be attributed to either one or the other. The unit of analysis accordingly extends beyond the individual.

Although Piaget focused on social factors far less than either Bandura or Vygotsky, he argued that interaction between social partners should be considered in the same way as a child’s interactions with the physical world: ‘The social relations equilibrated in cooperation ... [are] exactly like all the logical operations exercised by the individual on the external world’ [Piaget, 1945/1977, p. 159]. Equilibration, occurring as a result of interactions between a child and the environment (whether physical or social), is such that the child never simply internalizes some aspect of that environment. Piaget [1945/1977] argued that as a result of engaging in discussion, interlocutors may arrive at a new, equilibrated level of understanding that is related to what both individuals brought to the discussion. In true dialectical fashion, the resulting changes in both children are not explicable in terms of the separate influences of either, but in the mutual interplay of influence. Similar arguments have been made by Bearison [in press], Light and Perret-Clermont [1989], and Youniss [1983].

In this regard, Piaget’s theory approaches the status of a contextual theory. However, the vast bulk of the research that Piaget conducted devoted no attention to social factors, even to the extent of his not considering the influence of his questioning on the thinking of his own children. The same is true of Piaget-inspired scholars who have conducted research on the effects of social interaction. They have almost always conceived of the effects as unidirectional and only rarely examined interactional processes, in order to assess mutual or transactional influences.

In Bandura’s theory, context is ever-present, particularly the immediate context (agents in the social world who are potentially available as models) but also the broader societal context. Bandura argues that the relation between individual and context is reciprocal, rather than unidirectional, and stresses the active nature of children, who seek out models on the basis of their preexisting attitudes and interests, as well as their current developmental status [Bandura, 1986]. Nevertheless, scholars conducting research from Bandura’s social cognitive perspective appear primarily interested in the impact of the external social world on the developing child, and thus most often view the influence of a model as if it were conceptually separate from the observer. Indeed, the model need not be physically present, except in videotaped form or on television. The interacting elements,
therefore, are viewed as independent, with the child needing to internalize what is 'out there' in the environment. The reciprocal processes of which Bandura writes are not a focus of research in this tradition.

Summary and Conclusions

The purpose of this article has been to examine the theoretical positions of Vygotsky, Piaget, and Bandura with respect to the relations between social factors and cognitive development. Because of a predilection for categorization on the part of interpreters and because empirical research tends to be more narrowly focused than the theory on which it is based, an impression has been fostered that these theoretical positions are highly dissimilar. However, the three theorists did not work (and do not continue to work, in Bandura's case) in intellectual isolation. Each theory developed in a shared intellectual environment, in a context shaped by the work of either one or both of the others, and with a shared goal of making sense of the nature of development. As a result, the theories in fact have much in common.

We conclude, however, that although commonalities exist, important distinctions remain. Although each theorist accepts that the social world (considered both at the macro- and micro-levels) plays a role in individual development, only Vygotsky argues that development must be understood in terms of the interpenetration of social factors, of both a historical/cultural and an interpersonal kind, and the child's individual development. Both Piaget and Bandura argue that environment-organism influences are bidirectional, and Piaget's theory (like Vygotsky's) has a dialectical element. Nevertheless, both Piaget and Bandura treat the individual as the unit of analysis, arguing that an individual's develop-

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Vygotsky, Piaget, Bandura


