that this downward movement depends on the complementary "upward" movement of spontaneous concepts (Thought 108-09), with the implication that teachers need to pay close attention to the status of students' spontaneous concepts.

2Eugenia Hanfmann and Gertrude Vakar, the translator/editors of one edition of Thought and Language, write: "Vygotsky's criticism, based on Piaget's early work, is hardly applicable to Piaget's later formulations of his theories" (9).

Works Cited


Piaget’s Structuralism: A Reply

DAVID R. RUSSELL

I appreciate Professor Brell’s giving me an opportunity to expand on my brief mentions of Piaget, one of many theorists I referred to in an already overlong essay. And while the space available here does not permit me to develop a detailed analysis of the relations between Piagetian and Vygotskian theory, I will suggest the overall lines of argument that support the claims and implications I made about those relations, claims to which Professor Brell takes exception. In the process, I will also point readers to some of the theory and research that addresses the complex relationship between these two related but distinctive theorists.

First, let me agree with Professor Brell that Vygotsky admired the work of Piaget and praised his “greatness” in “revolutionizing the study of child thought and speech” (Thought [1986] 12-13), his highly original research methods (some of which Vygotsky used), and his insistence on the evolutionary study of consciousness. Moreover, both agree that the study of thought is
developmental, that the child, as Rousseau put it, "is not a miniature adult and his mind not the mind of an adult on a small scale." Professor Brell is also quite right in pointing out that Vygotsky, who died in 1934, was criticizing (and admiring) Piaget's work in its very early stages. Moreover, Professor Brell and I share the view that both Piaget and Dewey are "transactional," in the sense that they agree that cognition and behavior arise from the interaction of organism and environment, and that Piaget does not fit neatly into either side of the nurture/nature dichotomy (see Bovet, Parrat-Dayan, and Vonèche). However, I deliberately avoided the term transactional in my essay because the two theorists describe the interaction of organism and environment in profoundly different ways, and I think the differences are crucial to composition studies.

Vygotsky took a socio-historical (also called sociocultural) view of development that makes social interaction the center of his theory. Cognition and behavior arise from the interaction of a person with other persons and events in the world, over time, with the use of cultural tools, particularly semiosis. Though Vygotskian theory recognizes that humans are biological organisms in a physical environment, it argues that very early in ontogeny, social rather than biological factors carry the burden of explanation for cognitive development (Wertsch 20-21). The unit of analysis is the cooperative activity or event, a goal-directed social interaction. For Piaget, cognitive development is at bottom an individual process that is only influenced by social interaction, and his unit of analysis is the individual. Though in some early writings (as yet untranslated) Piaget makes statements that sound very close to a socio-historical position, in his subsequent work he did not develop an analysis of social influence or of social context (see "Logique" and "Problems"; on the controversy see Kanjirathinkal; Kitchener; Rosenberg). Instead Piaget took a structuralist view of development, most explicitly in his later work. He saw cognition and behavior arising by means of functions (organization and adaptation) and structural relations. Like Kant (whose influence he often acknowledged) Piaget saw the structure of the individual human mind as the source of our perception and rationality; but unlike Kant, he sought a biological explanation in a universal tendency in each organism toward self-regulation or equilibration, as it perpetually encounters and adapts to its environment, a process Professor Brell alludes to in his first paragraph.

Professor Brell also points out that Piaget rejected innatist views, including Kant's a priori categories. Piaget argued that human beings are not born with categories or structures of thought but instead construct them through a long process of development. For Piaget, however, that process of construction, though influenced by social factors, has its ontogeny in sensory-motor activity, the interaction between physiology and physical (not social) environment. In Piaget's mature theory, human beings construct their minds by activity in the physical world, not the social world, as Vygotsky argued. For Piaget, the social world provides information or content for cognitive opera-
tions that have their origins elsewhere (Forman). In the deepest sense, each individual learns to think through his or her body, not through human community. Out of the biological functions of organization and adaptation come cognitive functions (assimilation, accommodation), which in turn give rise to mental categories of reason (such as causality, reciprocity, number, space, quality and class) and also, later, to semiosis, though semiosis is derivative of other cognitive operations and has no special status, as it does in Vygotsky's theory (Six 93; Origins 9; Biology 46-47). This led Piaget to argue that cognitive development follows stages. And because our bodies have certain species-specific physiological regularities acting through equilibration and because our experience with physical objects and forces has certain universal regularities, Piaget argues these stages are, to use Professor Brell's term, "inevitable," and thus common to individuals in all cultures: universal. Because in the deepest sense we learn to think with our bodies, abstracting from what Piaget calls *schemes* of action, the categories of thought are also universal, though they manifest themselves in many cultural forms. "Biological invariants," Piaget wrote, "once they have been reflected upon and elaborated by consciousness during the great stages of mental development, give rise to a sort of functional *a priori* of reason" (Origins 9).

In this way Piaget is able to posit "inevitable" mental categories from biological processes, without resorting to Kant's innatism. Consequently, I referred to Piaget's stages of cognitive development as "biologically determined"—though they are neither genetically-determined nor, strictly speaking, innate. They are biologically determined through sensory-motor activity and the universal functioning of equilibration. Consciousness is not (as in Vygotsky's theory) socially constructed through the mediation of cultural tools such as semiosis.

Many critics (Vygotskians and others) find the concept of equilibration vague and wonder why it must mean that all individuals walk down the same developmental path toward logic because of their common physical *donné*, irrespective of historical cultural formulations (Beilin 191). But Piaget insisted, "If the concept of self-regulation or equilibration has any sense at all, the logic or pre-logic of the members of a given society cannot be adequately gauged by already crystallized cultural products.... What we want to know about is individual inventions" (Structuralism 117). Yet it is precisely those "already crystallized cultural products"—language, literature, art, science, music, games, institutions, academic disciplines—that the Vygotskian (and other externalist) theorists analyze to explain individual cognition, "not from the individual to the social, but from the social to the individual" (Vygotsky [1986] 36). For Piaget, however, development is fundamentally an individual matter, a substrate of structural transformations, a universal cognitive base upon which semiosis and culture rest. "So then," Piaget continues in Structuralism, "the history of intelligence . . . is a bundle of transformations, not to be confused with the transformations of
culture or those of symbolic activity, but antedating and giving rise to both of these" (119). Brian Rotman, a Popperian critic of Piaget, puts succinctly a central question that a Vygotskian perspective also raises in this regard. Because Piaget's theory posits an inevitable path of autonomous development, it then

seems so near to an innatist theory that for Piaget to claim otherwise seems a quibble. For what is the difference between a theory which says that logic is innate (i.e., not acquired in any sense from society) and one that says it is abstracted from schemes of action, if these schemes are the same for each of us because we have the same innate physical dispositions, and if the abstractions or constructions are again the same for each individual because they proceed, independently of individual variations or of society, along necessary lines of development determined by equilibration? (163-64)

These aspects of Piaget's theory are what led me to place it in a different category than Vygotskian socio-historical theory or Deweyan neopragmatism. Piaget's positing of inevitable mental categories, logical/pre-logical structural transformations, or universal stages of development through which individual cognition is constructed, is an excellent example of what Rorty calls a tertium quid, a "third thing" that dualistic theories require to mediate between an organism and its environment (Russell 177). Indeed, Piaget himself used the term tertium quid to describe his attempt to theorize the development of mental structures as neither innate nor created through culture, but as part of an inevitable sensory-motor ontogenesis of cognitive development (see Rotman 159). Piaget did, as Professor Brell points out, reject traditional Cartesian dualism, but his theory admirably illustrates what Donald Davidson calls "a dualism of scheme and content, of organizing system and something waiting to be organized" (Russell 175). Indeed, the term scheme is important to Piaget's theory, denoting a property of an action which can be generalized to other contents (Science of Education 9). Piaget wrestled mightily with the problem of the relationship between scheme and content. But he never gave up his search for, as Professor Brell puts it, a "sanction" for "an inevitable sequence of steps of 'interactive' development." In response, I argue that, from an externalist perspective, the search for such a sanction is fruitless if there is no dualism of scheme and content to be mediated by some tertium quid, whether this be a Rousseauian universal human nature, Kantian innate a priori categories, or a Piagetian inevitable pattern of cognitive developmental stages.

In terms of pedagogical implications, the thrust of my essay's argument, I did not say (and hope I did not leave the impression) that I consider Piaget an educational Romantic in the Rousseauian mold. What I hope I implied is that the dualist assumptions behind Piaget's theory are part of an educational tradition he shares with Rousseau and Kant (who explicitly developed Rousseau's pedagogical ideas). All three argue, albeit in different ways, that social factors may only influence (foster or impede) children's "natural" or
“inevitable” cognitive development, though Kant and Piaget focus more than Rousseau on the positive potential, not the corrupting influence, of social factors. One can see this legacy in Piaget’s insistence that formal instruction must wait for students to arrive at an adequate developmental stage to be a positive influence (Beilin cites reviews), that cross-cultural studies will confirm universal stages (Mwamwenda cites reviews), and that the asymmetrical power relations of children and adults mean that discussions between them are unlikely to result in cognitive restructuring (Language; "Operations Logique"; Tudge and Rogoff; Rogoff).

If Piaget did, as I would argue, reinscribe Kantian a priori categories and a dualism of scheme and content within his structuralist “genetic epistemology,” then it is not surprising that he shared Kant’s view that the role of formal education is to carefully structure the child’s experiences to allow optimal growth through inevitable stages. The problem of education becomes how to overcome the consequences of an assumed culture/individual dualism, how to “unite submission to the necessary restraint” of culture with the child’s individual, independent development, as Kant put it in über Pädagogik (qtd. in Bowen 212). Culture and the individual are seen as separate rather than, as in Vygotskian theory, mutually constitutive.

The disagreement between Vygotsky and Piaget on the development of concepts hinges on this theoretical difference. Though Vygotsky adopted Piaget’s term spontaneous concepts, he gave it a socio-historical meaning. For Piaget, spontaneous concepts develop primarily out of sensory-motor activity. For Vygotsky, they develop primarily out of ordinary, day-to-day social activity outside of (or prior to) the formal setting of school. Scientific (or non-spontaneous) concepts are constructed through systematic interaction with schooling and organized adult activities (such as academic disciplines). Thus, when Piaget argues that teachers should “utilize children’s spontaneous concepts and tendencies in the teaching of scientific concepts,” he is arguing for structuring classroom instruction to wait for the child’s inevitable cognitive development, to provide social supports to prepare for its advent and assist it when it comes (see Kozulin 167-73). Even in Piaget’s mature theory, there is a dualistic formulation of “cultural transmission” (accommodation to the demands of a specific culture, coercive in nature) and “equilibration” (an individual, creative construction of general logical principles) (To Understand). Piaget does not explore the possibility that culture might, at times, “transmit” knowledge without coercion in such a way that individuals actively create knowledge through cultural participation (see Newman, Griffin, and Coles 93). Vygotsky’s approach, on the other hand, emphasizes the socio-historical interaction of student(s) and school(s) constructing development in ways unique to each culture (often, in Western culture, through academic disciplines). In this view, the activity of schooling leads development. The teachers (and/or more expert peers) are essential partners in development, co-creators, not accompanying facilitators to a
process that begins and develops by other means.

In the view of some, myself included, applications of Piaget’s theory to literacy improvement have had some unfortunate unintended consequences. Piagetians have sometimes explained students’ not having acquired certain literacies by assuming that the students have not yet arrived at a certain developmental level (see, for example, Mike Rose’s analysis of remedial writers and Piagetian pedagogies). From a socio-historical perspective, positing a *tertium quid* of inevitable stages is not only unnecessary but may also keep us from confronting and reforming the social and institutional structures through which students acquire and appropriate and transform those literacies (or fail to do so).

In conclusion, let me say that I have indeed read Piaget’s “Comments” on Vygotsky’s criticisms of his theory, which Piaget wrote “after reading in manuscript Chapter 2 and excerpts from Chapter 6” of the 1962 translation of *Thought and Language*. Unfortunately, that translation contained only about half the text of Vygotsky’s critique of Piaget’s theory, and the missing portions deal with the central theoretical points of difference. Now that we have the full text in translation (*Thought* [1986]) and much of Vygotsky’s other work, we can assess what Piaget did not have the opportunity to assess: Vygotsky’s analysis of Piaget’s Freudian assumptions and his central disagreement over the importance of socio-historical factors and semiotic mediation to the development of cognition. I would urge Professor Brell and others, who may have not seen the 1986 translation, to judge whether “brilliant” is too strong a word for Vygotsky’s analysis of Piaget’s theory in the 1920s.

One can also judge whether Vygotsky’s central criticism of Piaget’s early work applies also to Piaget’s later work: that Piaget’s theory and research do not adequately consider socio-historical factors that might explain cognitive development. This criticism, shared by some neo-Piagetians today (such as Karmiloff-Smith), should not cause us to dismiss Piaget’s work; rather, we should, as Professor Brell suggests and as Vygotsky did, continue to test and reinterpret the huge body of theory and research in the Piagetian school—as Piaget himself hoped and expected. Vygotskian theorists have also critiqued and revised Vygotsky, as with his concept of “laws” of psychological development, to which Professor Brell refers (see Kozulin chap. 7; Wertsch 33-40). In places Vygotsky uses the term “psychological law,” but not, I would argue, in the Enlightenment sense of natural law or “a universal pattern of human development” discovered once and for all. In keeping with his socio-historical approach, laws of development are culturally constructed theoretical formulations to be tested according to their usefulness for historically-situated goals.

In recent years there have been important attempts among developmental psychologists to see and elaborate relations among Piagetian, Vygotskian, and Deweyan neopragmatist theories (see Wozniak; Tudge and Rogoff).
One of the most useful for our field, in my opinion, is Barbara Rogoff's 1993 article, "Children's Guided Participation and Participatory Appropriation in Sociocultural Activity," in which she traces the similarities and differences among these three theories in relation to social collaboration and apprenticeship learning. She concludes,

Vygotsky's and Dewey's views seem more adequate to an overall conception of individual development in sociocultural context. Adding social and cultural levels of explanation secondary to a "basic" individual level, as would be necessary for the Piagetian position to encompass development in sociocultural context, is an unwieldy alternative that does not lead to the same seamless involvement of individual in sociocultural activity that is offered by Vygotsky and Dewey and their followers. (127)

Activities that involve writing are by their very nature sociocultural, and I suspect Vygotskian and Deweyan theory may well prove more useful for our profession's purposes. But I am certainly not suggesting that we ignore the contribution and the influence of Piaget. I agree with Professor Brell that composition studies needs to look more deeply at Piaget's theory. However, I do not agree that composition theorists in general have found Piaget wanting in comparison with Vygotsky. Apart from a few articles, such as John Trimbur's lucid analysis of Vygotsky in relation to the dualism of Piaget (which I cited in my essay), the two theorists have all too often been linked in such a way that the differences are minimized, as James Zebroski's analysis of the references to Vygotsky and Piaget in composition demonstrates ("Writing as Activity" 5-19; Thinking). I have tried to suggest here that those differences are central to understanding the relationship between Piaget and Vygotsky and, I believe, crucial to our profession's work.

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Notes

1Vygotsky's theory has also been criticized as innatist by Jerry Fodor. For a reply, see Newman, Griffin, and Coles 66-69.

2There continues to be a great deal of controversy among Piagetians over the relation between cognitive structure (in developmental stages) and socially-transmitted content (culture). For a summary and analysis, see Levin.

Works Cited


A Response to Jane Tompkins

HELEN ROTHSCILD EWALD

Dear Jane,

I just finished reading your “Postcards from the Edge,” and I was wondering.

About silence. You initially introduce us to silence as war. Later silence “attends the recognition of an important event,” but I never escape the sense that silence for you is, well, unsafe. Particularly in the classroom. That led me to thinking that perhaps my students agree with you. A little background here: one of my colleagues who has audio-taped my classes has noted that he was initially “shocked” by the amount of silence typically found in any one of my discussion-based classes (ninety seconds can seem an eternity). I, perversely, took this as a compliment. I really view (or have viewed up to this point) silence as productive, especially during class discussion. But now I am forced to acknowledge that silence itself, if not as war, could at least be interpreted as a weapon by my students. Silence could be seen as yet another method of “control,” especially if school were perceived as naturally a place for sitting in rows. Silence might be an oppressive means of forcing student talk. I don’t like this interpretation, but I think it only fair that I put my interpretation of the salutary nature of silence at risk (see Sotirou’s article in the same \textit{JAC} issue in which your “Postcards” appeared).

About authority. In my opinion, student-centered pedagogy in general and feminist pedagogy in particular see teacher authority as, yes, unsafe. Inherently oppressive, like power in general. I appreciate, however, the sense of