

Jerome Bruner: The Harvard Years

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Abstract. The themes and sources of Bruner's scientific work during the Harvard years are the topic of this essay. Analysis of his writings yields intention, meaning, and culture as the organizing themes of his diverse work during this period. These themes also link the earlier Harvard years to Bruner's current writings on autobiographical narrative. In addition, a fourth theme, human evolution, has yielded underlying questions animating Bruner's developmental research and educational applications from Harvard to Oxford to New York: What is human about human beings? How did they get that way? How could they be made more so?

In an announcement for a recent colloquium at the University of California at Los Angeles entitled 'Autobiography and the construction of self', Jerome Bruner proposed that he would 'examine the various strategies by which a narrator here and now depicts a protagonist there and then who bears his same name and manages to get the two of them, narrator and protagonist, to fuse into one person at the end' – the ultimate developmental task.

And this will be my task as well. What is the deep structure of Jerome Bruner's intellectual trajectory, such that the 'there and then' of the Harvard years fuse into the 'here and now' of his article in this issue? My goal is to show how Bruner's contributions to

child development in the Harvard years relate both to the developmental issues of his later work (particularly the article that follows) and to his own developmental roots in the field of psychology.

The Harvard years started long before Jerome Bruner began to study development. But their beginnings in Harvard graduate school from 1938 to 1941 provide some intriguing clues as to why Bruner's interest in development has culminated in his article here.

Jerome Bruner was my teacher at Harvard, but he and I also had the same teacher – the social psychologist Gordon Allport. In Bruner's autobiography, *In search of mind*, he concludes that Allport 'did not have a

deep effect on my style of thinking' [Bruner, 1983, p. 36]. Nevertheless, the effect may have been deeper than Bruner imagined. As a case in point, Allport's preferred instrument of inquiry was none other than the life history; indeed, Allport worked for 20 years analyzing the autobiographical *Letters from Jenny*, finally published as a book in 1965. Allport and Bruner even collaborated in research on the historical use of autobiography [Allport et al., 1941]. Still, in 1956, Allport found the cognitively oriented *Study of thinking* [Bruner et al., 1956], in Bruner's words, 'much too far from life' and felt that his former student 'was taking leave of "real" psychological concerns' [Bruner, 1983, p. 122]. How surprised Allport would have been to find his wayward student, Jerome Bruner, today sharing his teacher's passionate interest in autobiographical narrative!

Apparently, Allport's influence on Bruner was a sleeper effect. The link between teacher and student serves as an invisible thread joining the 'here and now' with the 'then and there'. But there is another important intellectual thread between Allport and Bruner. Allport always wanted to close the chasm he perceived between *causal* psychology – the mechanistic, behavioristic psychology attempting to link effects with antecedent causes – and a *purposive* psychology – a psychology that considers the nature of human intention [Allport, 1967]. This was impossible because, for Allport, individual intentions were something apart from and not reducible to general laws of cause and effect. Bruner has, in many ways, bridged the gap which his teacher named but could not cross. Bruner has consistently pressed psychology to accept the notion of intention by demonstrating that intention is a part *of*, not apart

from, lawful behavior and its development. In Bruner's analysis, intentionality or purpose is always the heart of psychological functioning, not an epiphenomenon of 'true' casual factors.

The concept of intentionality goes back as far as I could personally go in Bruner's Harvard years – 1958, my freshman year at Radcliffe College. Intentionality appeared in my notes from Social Relations 10 (the introductory course in the interdisciplinary Social Relations Department), where he discussed the intentional structure of competence motivation, stressing its proactive, forward-planning character.

However, of greatest interest to the field of child development, Bruner demonstrated the pervasiveness of intention even at the very beginning of life. Intentionality played a key role in Bruner's study of infancy, in which he showed that the ontogenesis of action begins with the goal and ends with the means. Intentionality also played a key role in his analysis of the developmental psychology of poverty. Bruner [1970] argued that children of poverty and their parents experience lack of confidence in the means-end relations characteristic of intentional or goal-oriented behavior.

Skipping for a moment into the Oxford years of Gopnik's paper, I note that intentionality also played a key role in Bruner's study of language. There he showed that the intentionality characteristic of speech acts precedes speech itself – that is, in language development, communicative goal precedes linguistic means. And, as we read in Bruner's article in this issue, intentionality is a major theme in the folk psychology of autobiographical narrative, in which the representational and future-oriented aspects of a variety of intentional states provide the glue that

transforms a succession of here-and-nows into a continuous life. Conceptually, intentionality rests on representation: Prior intention – to use the term of Searle [1980] – requires a mental representation of the goal state. The same dependency (between intention and representation) is true in a historical sense in Bruner's work. Moving backward in time from his studies of infant intentionality, we arrive at his earlier investigation of representational development in childhood.

In the article in this issue, Bruner states that 'the major activity of all human beings is to extract meaning from their encounters with the world'. In his theory of cognitive development, modes of representation are the tools by which the developing child extracts meaning from his or her world. The ordered development of three modes of representation – the enactive, the iconic, and the symbolic – lies at the heart of Bruner's theory of cognitive development. Later modes depend on earlier ones, but they are not stages, for earlier ways of making and decoding meaning are not lost, and adults possess the flexibility of all three systems, ready for use in different situations. The culmination of this theory and its related research was the publication of *Studies in cognitive growth* in 1966 [Bruner, Olver, Greenfield et al.].

As the book and many other publications revealed, Bruner's students of that period – undergraduate, graduate, and postdoctoral – produced a rich legacy for the future of the field of cognitive development. The work of Olver, Hornsby, Reich, and Greenfield on equivalence groupings anticipated the current interest in categorization and its relationship to language [Greenfield et al., 1966; Olver and Hornsby, 1966]. The research by

Mosher and Hornsby [1966] anticipated current interest in cognitive strategies. Their study of the game of '20 questions' provided a clever way to investigate the growth of a hierarchically organized Boolean logic, a problem that keeps reappearing in the field of semantic development in varying guises. Olson [1966] dealt with strategies for differentiating redundant and nonredundant visual information in the construction of an iconic mental model. Even though 'strategy', 'mental model', and 'information processing' are now routine terms in the field of cognitive development, it is unclear that anyone else has continued to investigate the following important theoretical question: How do children differentiate information from redundancy, thereby selecting *which* information to process? The study by Bruner and Kenney [1966] on the use of language in a matrix task went beyond the simple linguistic determinism of the Whorfian hypothesis to explore the notion of language as a tool of thought. In its own way, each of these projects dealt with how children at different stages represent a problem and act on this representation, thereby participating in the creation of meaning.

Indeed, the extraction of meaning is another one of the themes that connects the 'then and there' with the 'here and now' of Bruner's current work. This theme goes back as far as Bruner's war research, principally concerned with public opinion and propaganda – not with war itself, but with the meanings people constructed *about* war. Meaning is also the unique contribution of Bruner's 'new look in perception', a hypothesized process in which meaning modifies sensation – as, for example, in the well-known experiment in which a coin's value (its conventional meaning) affects a person's

estimate of its physical size. Meaning is a *leitmotif* in the concept attainment research reported in *A study of thinking* [Bruner et al., 1956]. In this work the relation of attribute to category is seen as a special case of the relation between sign and significate.

What is interesting about the role of meaning in Bruner's work is that it gets larger and more 'perspectivized' at each stage of his theorizing. In the 'new look in perception', meaning is almost an intruder. In the concept acquisition research, meaning turns into categorization. Meaning becomes central for the first time with the theory of cognitive development, based on representation. Indeed, the core of representation is meaning, the relation of signifier to signified. There is a sequence to the representation of meaning: Children's first signifiers are motoric actions, next comes the analog image, and, finally, the arbitrary, conventionalized symbol.

Next, the ontogenesis of meaning and its social origin become a focus of the work on language and communication development. There, the growth of conventionalized meanings between mother and child is seen as the creation of and socialization into dyadic cultures that vary with each mother-child pair.

Finally, the construction of meaning on the level of a life is *the* problem of autobiographical narrative, a major focus of Bruner's ongoing work, represented in the article in this issue. But a person does not simply have one single autobiography; there can be an infinite number constructed at different times for different purposes, each with its own unique perspective.

Culture is clearly another one of the concepts that fuses the Bruner who wrote the article published here with the protagonist of

this intellectual biography. Culture and cultures have always been present in Bruner's work in one guise or another. European cultures dot Bruner's wartime research, e.g., an article titled 'Contemporary France and educational reform' [Bruner and Brown, 1946]. Culture appeared in my Social Relations 10 notes of 1958; in his lecture, Bruner observed that our cultural heritage affects how we select, simplify, and use technological aids to deal with our information-processing limitation, his colleague George Miller's magical number 7 plus or minus 2. In his own research of this period, the arbitrary concepts of *A study of thinking* [Bruner et al., 1956] were viewed as paradigmatic of the conventionalized categories a culture was thought to provide for its members.

Most important from a developmental perspective, it is the culture that provides amplification systems for each mode of representation that develops [Bruner, 1965, p. 1009]:

There are first, the amplifiers of action – hammers, levers, digging sticks, wheels ... Second, there are amplifiers of the senses, ways of looking and noticing that can take advantage of devices ranging from smoke signals and hailers to diagrams and pictures that stop the action or microscopes that enlarge it. Finally and most powerfully, there are amplifiers of the thought processes, ways of thinking that employ language and formation of explanation, and later use such languages as mathematics and logic ...

When Bruner gave me the opportunity to do my PhD thesis in Senegal in 1963, a major focus was language – both oral and written – as cultural amplifier of symbolic thinking [Greenfield, 1966, 1972; Greenfield et al., 1966]. The media as amplifiers of sense and thought was the subject of a 1970 article by Bruner and Olson, one that probably unconsciously inspired my media re-

search of the last decade [Greenfield, 1984a].

Closely linked to both culture and cognitive development is Bruner's theory of instruction: 'A theory of development ... must have inherent within it a theory of instruction' [Bruner 1962, p. 22]. Very simply, Bruner's instructional theory states that the ordering of cultural amplifiers in an instructional sequence should follow the developmental sequence of the three modes of representation.

But culture is not a unitary concept. Cultures vary in exactly what amplifiers they provide for their members and how they do so. The choice of cultural amplifiers is closely linked to the choice of instructional methods. Indeed, the differential analysis of cultural amplifiers and instructional sequences in modern, technological versus traditional, nontechnological societies became a focus of my own research [Greenfield, 1972; Greenfield and Bruner, 1966].

Later in Bruner's work, culture becomes the shared meaning created by mother and infant in prelinguistic communication. And, finally, in the article in this issue, culture is where an autobiographical narrator locates him- or herself so as not to have to talk about the ordinary in life – that which is shared with the other members of one's group.

But culture was always balanced in Bruner's thinking by biology. After all, his very first publication was in physiological psychology. In evolution, he found a framework that could link culture and biology. Evolutionary theory was the perfect bridging mechanism for someone who, in just a few years, had gone from studying 'the effect of thymus extract on the sexual behavior of the female rat' [Bruner and Cunningham, 1939] to producing titles like 'The dimensions of

propaganda' [Bruner, 1941] and 'Personality under social catastrophe' [Allport et al., 1941]. Like the concept of intention, evolution also fits with Bruner's bias toward functional rather than structural explanations of human nature. (The functionalist strain in Bruner's theorizing is elaborated by Gopnik in the paper that follows.)

The force of evolutionary theory was particularly strong in the period of study of infant cognition, from about 1966 to 1972 – undoubtedly because nowhere in the life cycle is our primate heritage clearer than during infancy. Evolutionary theory manifests itself in Bruner's concern with the development of manual intelligence (of interest as a precursor to tool use), in the notion of preadaptation, in the management of immaturity through mother-infant interaction, scaffolding, and observational learning. T. Berry Brazelton, Barbara Koslowski, Edward Tronick, Colwyn Trevarthen, and David Wood were important colleagues here. My own analysis of the nature of weaving instruction in the Mayan community of Zinacantan was a manifestation of this emphasis on the interactional management of immaturity, an important cognitive adaptation of the human species [Childs and Greenfield, 1980; Greenfield, 1984b].

In Bruner's article here, culture (with a small 'c') becomes Culture (with a large 'C'). Bruner makes the argument that it is important to compare humans in actuality with humans in myth, poetry, and science, because it is in the nature of culture-bearing beings that art influences life. In terms of this view, Culture becomes the intention writ large: Myth, poetry, and science provide the goal images that guide human action. For Bruner, this is the logical conclusion of what has always been an essentially transcenden-

tal view of human nature, a view that emphasizes – in contrast to material determinism – the otherness of human capacities, the ability of a representation to refer beyond itself in space and time, the creativity of discovery learning, so important in his educational theory, and the open-ended quality of human culture, always in evolution.

In the Brunerian view, biology is a foundation, but not a determinant. Most important for Bruner is the fact that, in the case of human evolution, culture drives biology and not vice versa. His most memorable and politically controversial achievement in education, the elementary school curriculum, 'Man, a course of study', takes an evolutionary perspective.

But, more significant, the curriculum turns out to contain an expression of the deep structure, indeed, the ethical structure of Bruner's own life work. The three central questions of 'Man, a course of study' are: What is human about human beings? How did they get that way? How could they be made more so? It is these questions that have, in the end, fueled the immense energy, intelligence, and creativity of Jerome Bruner, yielding a profound and unique developmental psychology.

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