Robert S. Woodworth (1869-1962): Career overview and contemporary significance

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Woodworth, Robert Sessions (1869-1962), American psychologist. After receiving a 1891 bachelor degree in philosophy at Amherst College (Massachusetts), where his first contact with psychology was through a somewhat antiquated text (William Carpenter’s Principles of Mental Physiology [1874])-- Woodworth taught various secondary and college level courses in science and mathematics while reading William James and G.S. Hall to update his psychological knowledge.

In the autumn of 1895, he entered graduate studies at Harvard dividing his time evenly between Josiah Royce and James (receiving an M.A. in philosophy, 1897). Both James and Royce encouraged Woodworth to pursue further training in the expanding field of American psychology. In accordance with such advise, Woodworth moved on to Columbia University to study under James McKeen Cattell whom had procured for him a fellowship in psychology. Woodworth received a Ph.D. in psychology for his dissertation The Accuracy of Voluntary Movement (1899).

Following receipt of his doctorate Woodworth accepted a one year instructorship in physiology at Columbia, 1901-02. His friend and fellow student from Harvard, E.L. Thorndike had also moved to Columbia and they collaborated on a series of articles regarding the transfer of training (Thorndike & Woodworth, 1901 a, b, & c).

Woodworth then completed a postdoctoral fellowship at the University of Liverpool in 1902 (thereby allowing him to do physiological work under Charles Scott Sherrington).

With the assistance of Cattell (then head of the department), Woodworth landed a full-time instructorship in psychology at Columbia in 1903 and returned to the U.S. with a wife (Gabrielle Schjoth) whom he had married in England (Zusne, 1975, p. 278).

Cattell's involvement in promoting the new mental testing subdiscipline, as well as his distaste for administrative responsibilities, led him to delegate to Woodworth the task of overseeing the collection of anthropometric and psychometric data at the St. Louis World's Fair, 1904 (see Richards, 1997). Woodworth's own autobiographical account (1930) describes his activities at the Fair as follows:

"We examined about eleven hundred individuals, making the standard physical measurements of the anthropologist, and also testing muscular strength, speed and accuracy, vision and hearing, and intelligence as well as we could with formboards and other simple performance tests that we devised. When the Fair was over, we promptly worked over our data, and reported some of the results at scientific meetings. [Frank G.] Bruner published the results of the auditory tests as his dissertation, and I gave a general summary of our results and their bearing on the question of racial differences in mental traits" (Woodworth, 1930, p.373; bold-text added).
Cattell reportedly left much of the administrative, teaching, and supervision of student duties to Woodworth during these early years at Columbia (Poffenberger, 1962, p. 682). Woodworth, however, was eventually rewarded for his efforts with a full professorship in 1909. The "general summary" of the St. Louis testing data (provided by Woodworth, 1910), it should be added, warned psychologists against over-reliance on group averages and urged the proper psychometric recognition of group overlap, within-group variation, and the role of culture.

In this early proclivity for psychometric tidiness (as in many other ways), Woodworth was ahead of his time; but we should not mistake this proclivity for a sufficiently sound recognition of the transformative role of culture in the production of higher mental processes from lower. Woodworth’s 1910 warning was merely one that psychologists should not be jumping to hasty hereditary conclusions upon inadequate data or inadequate analysis of data.

In 1911, the revised edition of G.T. Ladd’s classic Elements of Physiological Psychology (1887) appeared. Woodworth had extensively rewritten the sections dealing with the nervous system, for which Ladd had made him the joint author.

In 1914, Woodworth was elected APA president. His presidential address "A Revision of Imageless Thought" (published, 1915), attempt to resolve the ongoing battle between two former Wundt students -- Oswald Külpe (a German psychologist from the Würzburg school) and E.B. Titchener (at Cornell)-- by siding with Külpe regarding the existence of imageless thoughts. Woodworth was followed as APA president, however, by the founder of behaviorism John B. Watson who wished to eliminate both reference to consciousness and use of introspective methods from psychology --precisely because the old Wundtian definition of psychological subject matter as ‘experience’ had led to such acrimonious and unproductive controversies. Woodworth (1924), as well as in his numerous texts and articles, counter-argues Watson on this very important point.

In Woodworth’s Dynamic Psychology (1918), he mobilized the term ‘dynamic’ to refer to the use of behavioral, physiological, or introspective methods depending on which method best fits the situation of empirical interest. This work was a revised version of a series of lectures that he gave during the academic year 1916-17 at the American Museum of Natural History. It was also his first of many openly critical (and characteristically eclectic) reactions to the relatively constricting methodologies being advocated by Titchener, Watson, and William McDougall.

During WWI, Woodworth was commissioned by the APA to prepare a test for emotional stability that might be used in the evaluation of recruits. The result was Woodworth's Personal Data Sheet (a ‘yes or no’ questionnaire) which was produced too late to be thoroughly tested on recruits. It was, however, subsequently revised and used by others in the field of personality measurement.

Shortly thereafter, Woodworth came out with his introductory text Psychology: A study of Mental Life (1921). This text was very successful undergoing five editions until 1947. The first three editions, alone, sold over 400,000 copies thereby assuring his financial well-being during those years.

Its 1929 edition was the first to employ the now standard multiplicative 'rectangular' interactionist metaphor (i.e., heredity x environment) for considering the nature vs. nurture debate --as a corrective for the older additive 'container of liquid' metaphor. This new metaphor was then reified in the following pedagogical diagram from the 1934 edition (p. 140):
Similarly, the 1934 edition has been credited for popularizing the new terms "independent" and "dependent variables" as well as with presenting the following scheme of experimentation --as establishing cause of variation in a dependent variable by way of holding all but one independent variable constant "c" (see Woodworth, 1934, p. 18; Andrew Winston, 1988; Winston & Blais, 1996; Danziger, 1997).

Two very informative articles by Woodworth on "dynamic psychology" appear in the anthology series edited by Carl Murchison (Psychologies of 1925; and Psychologies of 1930 respectively) and Dynamics of Behavior (1958) constitutes his last elaboration on the matter of inclusive rather than exclusionary methods.

In terms of his teaching portfolio, Woodworth considered physiological and experimental psychology as his basic courses but also taught various other courses including: introductory, abnormal, social, tests and statistics, history and survey of contemporary psychology until his retirement in 1942. Two of his more prominent early students include Albert T. Poffenberger (Ph.D., 1914) and Edna Heidbreder (Ph.D., 1924).

Although officially the head of the department 1918-1927 (after Cattell), Woodworth was not a good administrator. He often delayed administrative decisions and actions to the last possible moment. In 1925 his former student (then colleague), A.T. Poffenberger willingly took over the whole administrative burden of the department (Murphy, 1963, p. 133) so that Woodworth "could at last use his time more nearly as he wished" (Poffenberger, 1962, p. 687). Poffenberger then became the official chairman from 1927-1941 and went on to become APA president in 1935.

One of the fruits of Woodworth's new found freedom was his Contemporary Schools of Psychology (1931) which is best known today for Woodworth's observation that the majority of psychologists of his day would not profess loyalty to any one school (p. 205). In making this statement, however, Woodworth was emphasizing not only his Jamesian belief that it is the complexity (i.e., plurality in unity) of psychological subject matter that initially produces divergent schools and subdisciplines; but also his historically informed optimism regarding the guiding role of that subject matter in ultimately cutting through early overstatements and aiding our search for the best theoretical concepts and methods to capture that complexity (see Woodworth, 1943; Ballantyne, 1993).
Another fruit of this general period was the long awaited publication of his "Experimental Psychology" (1938) --sometimes known as the "Columbia Bible"-- which replaced Titchener's laboratory manuals as the standard technical guide for the succeeding generation of experimental psychologists. This book was a masterful, updated reformulation of a mimeographed version used by Columbia students since 1909 and constitutes one of Woodworth's largest influences on the future course of general-experimental psychology (see Winston, 1990).

While Woodworth himself (see the following 1938 preface quotation) acknowledges a functionalist undercurrent to the work, we should note that the particular definition of function given runs more in line with the Angell or Carr variety than with the James or Dewey variety. The unit of analysis named by Woodworth is biological and implies that the psychologist's task is to 'measure the interaction between the organism and its environment' --rather than to 'investigate the phylogenetic, ontogenetic, and socio-historical transformations' (i.e., continuity and discontinuity) of psychological processes (see also Ballantyne, December, 2003).

"It may be true, as has been said, that the present author represents the functional school of psychology, in the broadest sense of the word. Psychology does seem to be a study of the functioning of the organism in its environment. This seems so much a matter of course to me that probably it underlies the discussion of many topics. I would warn the reader especially against a probable theoretical bias in the chapters on Conditioned Response, Maze Learning, Perception of Color, and Problem Solving. Study of these topics has served to clarify my own systematic view, but any explicit presentation of this view must wait for another occasion" (Woodworth, 1938, p. v; bold-text added).

Despite subsequent individually authored, coauthored, and posthumous editions of Woodworth's textbooks (e.g., Woodworth & Marquis, 1947; Woodworth & Schlosberg, 1954; Woodworth & Sheehan, 1964; Kling & Riggs, 1971) the promised 'someday' of "explicit [functionalist] presentation" never really came.

The systematically vacuous 'heart' of experimental psychology, while initially adequately fulfilled by Woodworth's 1938 and 1954 editions, was already receiving overtures from overtly operationist texts with no pretense of systematic goals (e.g., Stevens, 1951 and its subsequent editions). Subsequent to Woodworth's 1962 passing, a full-fledged and long-standing affair with statistical cookbook training for undergraduates and then graduates too (i.e., one involving empirical techniques separate from content) is also notable (cf. Psyc. Monitor, Dec. 1999).

Finally, a few concluding remarks must be made on the collective disciplinary contribution and contemporary significance of Woodworth's texts. While the progressive pedagogical influence of Woodworth's inclusionary texts on subsequent entrance-level "introductory" psychology course content is undeniable, it is time (I believe) for historically oriented psychologists to improve upon the two other pervasive influences of his work: Namely the so-called "dynamic" interactionist metaphor of nature vs. nurture; and the Stimulus-Organism-Response account of subject matter.

As Heidbreder (1963) points out, Woodworth (1918, 1921) initially adopted an expanded S-R, and then successive S-O-R formulas (1929 onward) to represent what he saw as the essential task of psychological investigation: To account for the 'give and take' between the organism's mentality and the requirements of its physical and social existence.

Woodworth's S-O-R diagrams (despite their recognition of central processes, final causality, and reciprocity with the environment), are too individual (and/or social) rather than socio-historical in their analysis of human psychological functions. Similarly, the "rectangular" dynamic interactionist account of the nature vs. nurture question (though an improvement over older additive model) is still too mechanistic rather than transformational in its analysis.

These aspects of Woodworth's work were indeed progressive at the time of their initial proposal and subsequent experimental elaboration, but they are now holding the discipline back. His dynamic interactionist, S-O-R, approach to psychology had been designed to conceptually capture and empirically measure the growth (numerical transitions) and environmental reciprocity of an organism's psychological
functions without sufficiently recognizing the further empirical imperative --to acknowledge and measure the development (qualitative transformations) of psychological processes specific to human beings.

Bibliography


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