Ben Wright: the Measure of the Man

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Benjamin D. Wright

For over 30 years Benjamin D. (Ben) Wright has been the leading expert on measurement (in its usual sense) in the social sciences. For many years he was its only conspicuous proponent. Yet this inevitable situation came about seemingly by accident.

Ben was raised in pre-WWII New York City. His mother was a Professor of Psychology at New York University, but the exciting field of study was physics. Quantum mechanics seemed to be the key to an intriguing, dynamic future. WWII was joined, and in 1944 Ben volunteered for the Navy. As part of his training to become a Naval officer, he was sent to Cornell University where he obtained a Bachelor's degree with honors in Physics and Philosophy.

The war concluded, and Ben embarked, not onboard ship, but on his intended career in advanced physics. In 1947 he took a job at the Bell Telephone Laboratories in New Jersey to work with Charles H. Townes on microwave spectroscopy. Then, in 1948, he became a research assistant to Prof. Robert S. Mulliken at the University of Chicago to work on ultraviolet absorption spectra. His research entailed performing the same experiment over and over again. Each experiment required many precise measurements. Almost all experiments ended up invalid. There were incorrect experimental conditions, flawed experimental procedures, and human errors. Finally an experiment yielded results that documented theoretical predictions in a useful way. That experiment would be deemed a success, and the next experiment would commence. This research was ideal for obsessive introverts. But, despite his love for physics, Ben was not one of those. So he looked around for a more lively field of study. His first choice was English, but the English professor he interviewed was so unhappy with his life that Ben looked further.

Society at large was just becoming aware of the problem of the mentally disordered. It was still routine to incarcerate such people in a lunatic asylum. For mentally disturbed children, this implied a life sentence. Bruno Bettelheim had a broader vision. He was convinced that seriously disturbed children could be helped to live productive lives at some level. He took on the Orthogenic School and engaged on a radical and highly experimental program to discover how to help children whom others had rejected as beyond help. Ben was fascinated by this daunting challenge, and so, in 1950, he joined the School as a counselor of schizophrenic children and Bruno's research assistant. In later years, Bruno was criticized for his many failures, but Ben already knew from his experience in physics that it is the long road of learned-from failure that leads to success.

Ben now embarked on the study of Freudian psychoanalysis and psychotherapy, but maintained his interest in mathematics and measurement. He published two papers with Bruno (1955, 1957) focusing on teachers and counselors, rather than children. But ultimately the emotional, mental, and even physical stress of dealing with dysfunctional children became overwhelming. Ben began to realize that child psychoanalysis might not be the way for him after all.

Bruno was a Professor in the Department of Education at the University of Chicago. The Department encountered a sudden need for an instructor in introductory statistics and Bruno nominated Ben because of his ease around numbers. So Ben started teaching statistics in 1956, but soon ran into trouble. He noticed that the statistical textbook gave errone-

ous advice. Accordingly Ben followed his training in physics, and started teaching according to his theory of statistics rather than parroting accepted wisdom. This soon drew the ire of the Education faculty as they encountered students who had not been indoctrinated into the conventional statistical lore. The Chair of the Department, Frank Chase, supported Ben, but the matter was finally brought before the University's foremost statistician, Prof. Leonard "Jimmy" Savage. Jimmy discerned that Ben was indeed correct. Thus Ben's status as a maverick statistician was confirmed.

Louis Thurstone had been active in the University's Psychology Department, advocating the theory and practice of factor analysis until 1950, and Ben had gotten to know him in 1948. In 1959, Ben took advantage of the University's recently acquired Univac I (1 kilobyte) computer to write a factor analysis program. This was part of "exploratory work on ways to convert observational and test data to meaningful measures" (Orden, 1961, p.11). Over the next few years, Ben performed hundreds of analyses for clients, using the resulting income to support his wife, Claire, and children Amy, Sara, Chris, and Andy. The clients, however, were frustrated. Factor analysis proved to be highly sample- and analyst-dependent. Each new sample of the "same" data yielded a different factor structure. Factor analysis was clearly not the road to scientific progress.

In 1959, Jimmy Savage ran into Danish mathematician Georg Rasch at a Biometrics Society meeting in Washington D.C. (Georg was a founding member). Jimmy had gotten to know Georg in the Autumn of 1947 when Georg was a guest at the Cowles Commission for Research in Economics at the University of Chicago. Rasch had also published papers on factor analysis (1953), but it was the need to tell the world of his recent discoveries in social science measurement that Georg impressed upon Jimmy.

Shortly afterwards, Jimmy talked about Georg's work to Ben, and Ben expressed some interest. Jimmy had funds for a visiting professorship, so he said: "Well, Ben, if you tell me to have him come, I'll bring him. I don't see a reason for the Statistics Department to have him. But, if you think the people in Psychology or Education will be interested, then I'll bring him." So Georg came to the University of Chicago in 1960, and Ben felt himself obligated to attend Georg's lectures.

Georg's first lecture was heavily attended by the Statistics Department and the statistical people in the Social Science Division. In his lecture Rasch criticized factor analysis, but, more significantly, his teaching style was bombastic and uncompromising. As the lecture series continued, people stopped coming. The social scientists couldn't understand the math. The statisticians thought he might be insulting them. Jimmy fell asleep about half way through the first lecture and slept all the way through the second. Then he stopped coming. Ben felt concerned about Georg being deserted by his audience and also discerned that what was being said was interesting. And Georg didn't give up. He brought in his notebook. He opened it carefully. He gave his lecture, even when there was no one there but Ben, his last student. So they made friends. They discussed methods to analyze Ben's semantic differential data. But then Rasch's visit was over and he went back to Denmark.

Ben and Georg maintained desultory contact over the next three years. Then, in 1964, when Ben again encountered the problem of analyzing semantic differentials, he used a visit to Georg as an excuse to take a trip overseas.

In Denmark, Georg and his wife, Nille, proved genial hosts to Ben, Claire, and their four children. Georg spent the mornings lecturing Ben on math and statistics. He rejected the conventional emphasis of social scientists on summary statistics, such as correlations and reliabilities, and went right to the observation itself and modeled it. To Ben this made sense, in fact, better sense than anything he had heard previously.

Claire and Ben

When Ben returned to Denmark in 1965, he took along graduate student Bruce Choppin. On their return to Chicago they got right to work writing FORTRAN programs for all the algorithms described in Georg's book (1960). The theory and

technique were presented at a Mid-West Psychological Association symposium, encompassing all those interested in Rasch measurement, in the fall of 1965 in Chicago. That was the debut of Rasch work in this country.

Again Ben might have drifted away from measurement, except that he encountered Nargis Panchapakesan, a physicist from Calcutta with an interest in education. Ben persuaded her to get another Ph.D. while developing effective estimation procedures for Rasch measures. By 1967, the work of Ben, Bruce, and Nargis was bearing fruit in the newly implemented UCON estimation procedure. In the spring, Ben presented a paper to the Psychometric Society. Then, in the fall, Benjamin Bloom, at Georg Rasch's instigation, invited Ben to speak at the 1967 Educational Testing Service (ETS) Invitational Conference. Ben felt that ETS talk, and a few published papers, would surely allow him to pass the baton to other researchers and lead to the speedy completion of his own Rasch work. But this was not to be.

The introduction of the UCON procedure marked a change in the relationship between Georg and Ben. This new development, which melded theoretical ideal with practical necessity, offended Rasch's mathematical sensibility. Ben was no longer Georg's compliant disciple, but was becoming an authority in his own right.

The practical application of Rasch measurement now proceeded apace. The first ever pre-session at the Annual meeting of the American Educational Research Association (1969) was on the Rasch model. Researchers, in small numbers at first, started to become interested in capitalizing on Rasch measurement. The second pre-session in 1970 proved to be the start of the long-continuing Rasch-based testing program operated by the Portland (Oregon) Public Schools. And then students started to enroll with Ben. David A. Andrich in 1971 (Ph.D. '73), Graham A. Douglas in 1972 (Ph.D. '75), Geofferey N. Masters in 1977 (Ph.D. '80), and the flow continues. Ben has chaired 110 Ph.D. committees, of which 75 focused on Rasch measurement.

Ben is as active as ever, in many ways more so. His experience in constructing Rasch measures from many different types of social science data, and in reviewing analyses performed by others, far exceeds that of any other researcher. Yet he perceives there are vast areas of observational data waiting to be addressed and still much to be learned. Rasch measurement has now become exactly that intriguing and dynamic field of study for which Ben yearned as a young man.

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"Measurement is not just any arbitrary arithmetical manipulation of responses; it is a theory of the phenomenon being measured. The theory may be relatively strong or weak in the assumptions it makes, but theoretical assumptions are being made, implicitly or explicitly. If the theory is wrong, or if our numerical relational system is not related homomorphically to our empirical relational system, then the arithmetic we perform on our numbers will not answer questions about the empirical relational system — or worse, it will answer them incorrectly. In a time that permits the facile use of various computer algorithms to turn responses into numbers, this point is important. All measurement is theory in some sense and we ignore the theory at our peril." pp. 245-6 in Anderson, A. B., Basilevsky, Alexander, Hum, Derek P. J. Measurement: Theory and Techniques. In Peter H. Rossi, James D. Wright & Andy B. Anderson (Eds.) 1983. Handbook of Survey Research. San Diego, CA: Academic Press, pp. 231-287.