History of the Highlands Ability Battery (tHAB)

By Lazar Emanuel

The history of the Highlands Ability Battery (tHAB) begins with the work of Johnson O'Connor. O'Connor graduated from Harvard after working with Professor Lowell in mathematical research related to Astronomy. In 1922, after working as a factory worker at a General Electric plant in Massachusetts, he was appointed head of the GE Engineering Department.

Encouraged by GE management, which recognized the need for new research in worker efficiency, O'Connor set out to apply the same research techniques to human beings as had been applied by others to physics and chemistry. Over time, the research was given the title "human engineering." The research was conducted under the general thesis that the scientific measurement of the functions related to each job at GE would reveal the natural abilities best suited to that job.

Thus, in considering the functions required of quality inspectors, for example, Johnson decided that the ability to detect subtle changes visually was at the heart of the job of inspection. Accordingly, he developed a test (he called his tests "worksamples") which would measure an individual's ability to notice changes in the field of vision. The test, called "Observation," begins with a display of random but well-known objects. In a succeeding display, some of the objects have been removed, some have been replaced, and some have been altered. The test-taker is expected to identify each change. In this way, we can tell if the test-taker has the ability to spot subtle changes – i.e., to perform well as an inspector.

O'Connor proceeded to develop a series of worksamples, each measuring a different job- or function-related ability. Eventually, he came to realize that a battery of his tests would not only supply the keys to specific jobs, but also indicate for each individual the full range of his or her natural abilities. Thus was born the concept of assessing human abilities through the performance of worksamples.

The concept was tested first among GE employees. As word of its effectiveness spread, interest also spread. For a period of three years, O'Connor conducted his studies at MIT. Those years were followed by a dozen years at the Stevens Institute of Technology. During that period, O'Connor developed a series of testing sites which have come to be known as branches of "Johnson O'Connor Research Foundation, Inc." The Foundation has offices in eleven major cities.

By 2002, more than 500,000 people had completed the Foundation's battery of worksamples. The Foundation requires on-site performance of the worksamples over two sessions followed by an evaluation conference lasting 1-1½ hours.

The Foundation's battery of worksamples include measurements of (the names were created by O'Connor; the Highlands Ability Battery gives different names to some of the abilities): personality, graphoria; ideaphoria; structural visualization; inductive reasoning; analytical reasoning; observation; design memory; tonal memory; pitch discrimination; rhythm memory; number memory; and silograms.

Since the development of the O'Connor on-site worksamples, the Highlands Company has been in the forefront of research to extend O'Connor's principles into other testing means than live clinical performance. In succession, the Company has utilized a paper-and-pencil version, and then has gone on to create a CD version, and, finally, an online version.

In 1992, the Highlands Company began its use of the paper and pencil version. The tests enabled the test-taker to perform on paper the same worksamples as O'Connor had tested clinically over so many years and among so many subjects. In the worksample on structural visualization for example, test-takers were asked to conceptualize the movement of wiggly blocks instead of moving them physically. Some tests were added – by Highlands, e.g., the worksample in paper folding.

In research among thousands of subjects in the first years after its utilization of the paper and pencil version, the Highlands Company was able to confirm the norm for each worksample. Once the norms were confirmed, individual scores or results could be converted into percentiles and an individual's strengths and weaknesses could be assessed.

In the year 2000, the Highlands Company made the gigantic leap of converting the paper-and-pencil version into a CD version. Instead of traveling to a remote office to complete the Battery, test-takers were now able to sit comfortably at their own computers and complete the very same worksamples as before. Through expert design and sophisticated instructions presented both visually and aurally, the CD Battery complies with all the same requirements as the clinical worksamples and is at least as reliable and valid.

In June 2004, the Company made the even more dramatic leap of converting the Battery to access online. For the very first time, worksamples developed over a research history of eighty years became available on the Internet.

Accessible by means of an individual keycode assigned personally to each test-taker, the online version has enabled the Company to develop a database consisting of more than 6,000 subjects. Data is kept separately by age and sex. Recent changes in the registration process enable the company to separate data also by educational level and by occupation or profession. The Company is proud of its achievements in perpetuating and expanding upon the initial research of Johnson O'Connor.

At the same time as it has developed and improved its product – the Highlands Ability Battery – the Company has expanded its cadre of certified Affiliates to more than 175 persons world-wide. Each one of the Affiliates is able to administer and conduct the two-hour feedback conference which follows completion of the Battery.

The Highlands Ability Battery is used by individuals and by organizations and businesses. It is the basis for workshops and programs in personal and professional development, team-building and leadership. At the option of the test-taker, it results in one of three different reports of natural abilities – student, adult or leadership.

So far as we are aware, the Highlands Ability Battery is now the only assessment available on the Internet which is based upon individual performance of real worksamples and not on self-report or self-appraisal. As such, it has a critical and respectable place in the world of human assessment.