



Research FAQs

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www.jocrf.org



Table of Contents

About the Johnson O'Connor Research Foundation 1

Career Validation Studies 2

Accuracy of Aptitude Test Results 3-5

Stability of Scores Over Time 6

Testing Population 7-8

Testing Outcomes 9-10

Testing and Neurodivergence 11

About the Research Department 12-13



What is the Johnson O'Connor Research Foundation?

The Johnson O'Connor Research Foundation (JOCRF) is a nonprofit research and educational organization that has been studying human abilities and careers since 1922.

JOCRF is both:

- a testing service offering aptitude testing for career and educational guidance to individuals 14 years of age and older and
- a research organization with a full-time research department dedicated to maintaining the accuracy of our data, isolating new aptitudes, and enhancing our ability to interpret aptitude test scores for our clients and the public at large.



History

Our aptitude testing service is the outgrowth of a testing program begun by Johnson O'Connor for the General Electric Company in 1922. His aptitude tests, or “worksamples,” were so effective as predictors of occupational success that demand for the service grew. In 1939, we incorporated as a nonprofit under the name The Human Engineering Laboratory. Today we have 15 testing locations across the U.S.

Aptitudes

Aptitudes are natural talents or abilities. Aptitude testing provides objective data about the types of roles and careers that will match how your mind likes to naturally work.



Career Validation Studies

Our occupational validation studies demonstrate evidence for the significant relationships between specific aptitudes and the types of careers we would expect to be related. These studies involve two primary approaches: analyzing data from clients who seek out our services for their own reason (e.g., see an example of types of occupation by aptitude [2019] [here](#)), and recruiting members of specific occupational groups to take the tests (e.g., see specific studies on engineering students [2012] [here](#) and theater artists [2015] [here](#)). In both cases, this involves careful selection of participants, ensuring they have sufficient experience in their field, and focusing on those who report job satisfaction.

Data from Client Pool

Studies using our main population of clients allow us to demonstrate the way aptitude testing can be useful across a variety of occupational fields. For example, when comparing the aptitudes of individuals satisfied with their careers to those who were dissatisfied within the same profession, we see a modest relationship suggesting that people with more alignment between their aptitudes and the demands of their professions tend to report higher job satisfaction.

Data from Occupational Groups

Studies examining aptitude scores within a certain profession help us map aptitude patterns across different occupational and educational groups. When validating the tests for a particular profession, we typically include data from individuals who have worked in their field for at least one year and report being either satisfied or neutral about their job. To make reliable generalizations, we aim to include at least 100 participants from the major occupational group, although we also supplement this with case studies and smaller groups.

Accuracy of Test Results

For all tests that the Johnson O'Connor Research Foundation uses to assess aptitudes, our researchers conduct studies to ensure standards of **validity** (how accurately we are measuring what we set out to measure) and **reliability** (how precisely and consistently we are capturing whatever we are measuring).

Certifying the validity and reliability of our aptitude tests is a continuous process that begins when a test is initially created and continues periodically as tests are revised.

Establishing Test Validity

Our researchers use several standards by which to establish test validity, including:

1

Construct validity – evidence that our tests are accurately measuring the aptitude (or “construct”) that they are supposed to measure.

Types of construct validity include:

- **Discriminant Validity** – the degree to which a measure is not correlated to other constructs that are theoretically unrelated
- **Convergent Validity** – the degree to which a measure is correlated to other constructs that are theoretically related



Accuracy of Test Results (Cont.)

- 2 **Criterion-Related Validity** – evidence that our tests can accurately predict expected real-world outcomes, such as vocational field.

Types of criterion-related validity include:

- **Concurrent Validity** – the degree to which a measure is correlated with other tests known to measure the construct of interest
- **Predictive Validity** – the degree to which a measure predicts future outcomes theoretically related to the construct of interest

The method(s) that is used to establish validity varies somewhat from test to test based on differences in the tests' content and construction.

You can see an example of a typical study to establish test validity [here](#).



Accuracy of Test Results (Cont.)

Establishing Test Reliability

There are multiple ways to establish test reliability. Our researchers focus on the two most common measures of reliability:

1 **Internal Consistency** – the degree to which the individual items on a test are related to all other items on the test

2 **Split-Half Reliability** – the degree to which two halves of a test are related to one another

The minimum standard of reliability we aim for with our tests is .80. This is above the generally accepted .70 threshold of acceptable test reliability.[1]

The JOCRF test battery has reliabilities ranging from .72-.97, with only three tests under the .80 JOCRF standard.



[1] Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334. DOI: 10.1007/BF02310555

Stability of Scores Over Time

One of the unique elements of our assessments is that the scores from our aptitude tests are relatively stable over time. An individual only needs to go through our service once, and the information will remain valid throughout the course of their lifetime and can always be used to make decisions. This is in contrast to other assessments, like interest surveys, that can yield results that change at different life stages.

What does “stability” mean in the context of aptitude testing?

In addition to internal reliability, the Johnson O'Connor Research Foundation conducts research to assess how well our test scores remain stable over time, relative to an individual's age.

Since performance on our tests may vary across different age cohorts, an individual's raw score at age 20 may differ from their score on the same test at age 50. However, aptitudes generally have rank-order stability, meaning test scores remain stable when an individual's score is compared to others in their age group, as seen [here](#) in our most recent study on stability.



How does JOCRF study test stability?

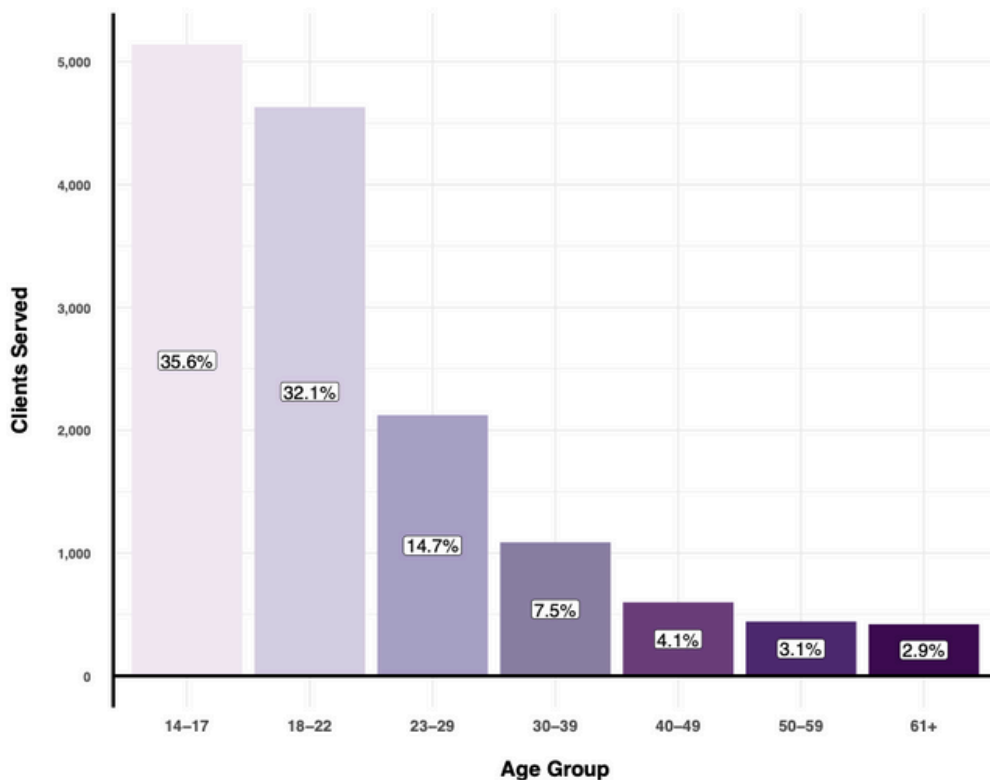
To evaluate test stability, we requested that our follow-up clients retake one of the tests, allowing us to compare performance over time. This process enabled us to establish both short-term and long-term reliability coefficients for 18 of our tests.

Testing Population

We test, on average, about 5,000 people per year in our offices across the United States. We have been administering most of our tests for at least 50 years, meaning some of our tests have been administered to hundreds of thousands of people.

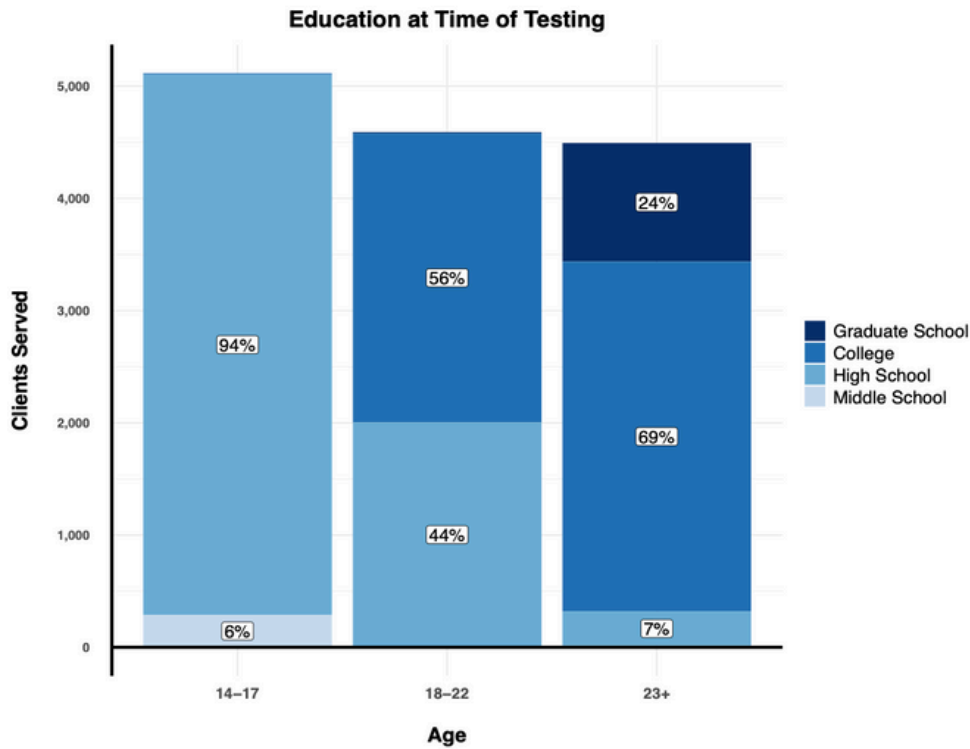
Our scoring is norm-based, meaning that clients are awarded percentile scores based on how their performance on a test compares with that of others of about the same age. Our norming is all based on the group of clients who come to us for testing. Below you'll see measurements of what our most recent norming population typically looks like, based on the 15,000+ clients who have been in for testing between July 2020 and July 2024.

Testing Population by Age



Testing Population (Cont.)

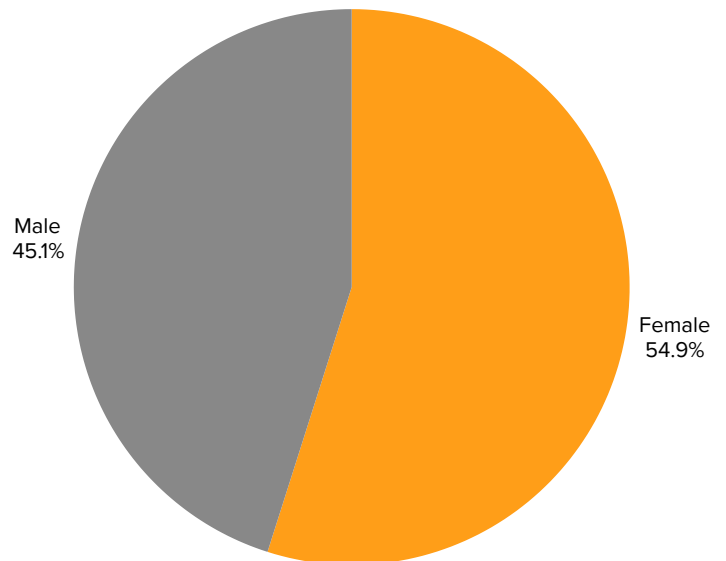
Testing Population by Education Level



The norm groups vary by size and make-up from test to test, but most comparison groups are at least several hundred people, with many comparison groups into the thousands or even tens of thousands.

We examine score distributions regularly and update norms as needed to account for population changes.

Testing Population by Sex



Testing Outcomes

We're frequently asked about the "success rate" of aptitude testing. While it is challenging to formally track the long-term impact of our aptitude testing services, we are making strides in gathering more structured data through follow-up surveys.

We recently launched a new program to collect 1-year, 5-year, and 10-year follow-up data for all Johnson O'Connor clients in an effort to collect more targeted insights into career-based outcomes. With this added context, we will gain a deeper understanding of how each individual aptitudes predicts vocational field, career success, and career satisfaction, thus improving our support for criterion-related validity of each of our tests.

What do JOCRF clients say about their aptitude testing experience?

In 2022, we conducted a survey of alumni and received over 800 responses. When asked whether aptitude testing significantly influenced a major career or life decision, over 84% of respondents indicated "somewhat" or "yes." This positive response suggests that our aptitude testing provides valuable guidance, although we recognize that the benefits are not always about changing career paths.

In many cases, the value lies in offering clarity, peace of mind, or the confidence to continue in a current direction. Our clients often report a deeper understanding of why certain activities or tasks are more satisfying, which may not lead to major career changes but can result in meaningful adjustments in job responsibilities, approach, or mindset.



Specific testimonies from past clients are available to read on our [website](#).

Testing Outcomes (Cont.)

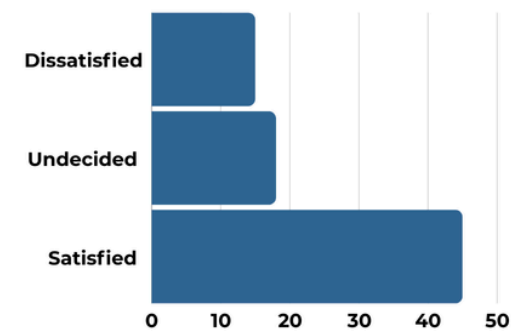
Do aptitudes align with career satisfaction? What do our clients say?

We have conducted client follow-up surveys to explore the relationship between aptitude alignment and job satisfaction.

A series of these surveys was distributed in the 2010s to better quantify how well clients felt their aptitudes were being utilized in their work and how this correlated with job satisfaction. These surveys found that clients who frequently use their aptitudes at work report higher job satisfaction and are more likely to agree with positive statements about their career. In contrast, those who rarely or never use their aptitudes experience lower satisfaction, highlighting the impact of aptitude alignment on career fulfillment.

Additionally, people who reported higher fit with their college majors or jobs tended to have aptitudes and interests aligned with those fields. You'll see more detail about the results of these surveys on pages 7-9 of the [2018 Research Annual Report](#).

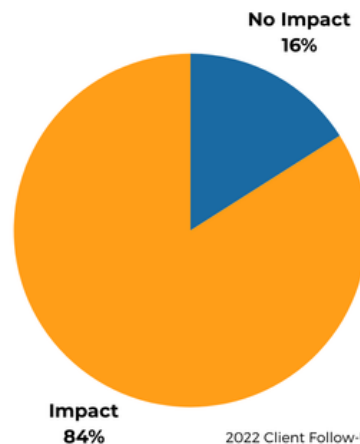
CAREER SATISFACTION & APTITUDE ALIGNMENT



Clients who feel that they are able to regularly use their aptitudes in their work report higher levels of satisfaction.

2019 Client Follow-Up Survey

APTITUDE TESTING'S IMPACT ON MAJOR CAREER OR LIFE DECISIONS



2022 Client Follow-Up Survey

Testing and Neurodivergence

We do not systematically collect data on learning differences or neurodivergence, so it is unclear the extent to which testing results, satisfaction with the testing experience, and aptitude profiles may be influenced by diagnoses such as ADHD, dyslexia, dysgraphia, verbal and non-verbal learning disabilities, and other types of neurodivergence. Since our normative data is primarily based on neurotypical clients, comparisons for neurodivergent individuals may not always be as meaningful.

Nevertheless, even though we do not know the frequency of neurodivergent diagnoses in our norming data, we can expect that (given the large size of our sample and the rate of incidence of neurodivergence in the population) neurodivergence is represented in our population.

Thus, we believe that some individuals with learning disabilities would still be able to gain valuable insights from testing results.



Goals of the Research Department

- 1** The isolation of aptitudes and the study of their role in various occupations.
- 2** The development of accurate measures of aptitudes.
- 3** The investigation of the role of aptitudes in education.
- 4** The evaluation of age and sex differences and the effect of practice on test performance.
- 5** The study of the processes involved in the acquisition of knowledge.
- 6** The development of accurate measures of knowledge.
- 7** The communication of research findings to the public.



Research Staff

Dr. Ryan Barry, Researcher, joined the research department in October of 2022. He earned a dual M.S. degree in industrial/organizational and quantitative psychology from Illinois State University and completed his Ph.D. in industrial/organizational psychology from the University of Tulsa.

Dr. Zara Wright, Researcher, became a part of the research department in the fall of 2023. She earned her M.A. and Ph.D. in clinical psychology, with a special concentration in measurement and psychometrics, from the University of Minnesota.

Dr. David H. Schroeder, Research Consultant, has been working with the research department since 1984. He has a B.S. from the University of Illinois and an M.S. from Colorado State University, as well as an M.A. and a Ph.D. in personality psychology from The Johns Hopkins University.

Kathleen Voss, Research Assistant, joined the Foundation as a test administrator in Dallas in 2019, and was brought on as a contributor to the research department in 2022. She has a B.S. in psychology and child development and an M.S. in psychological sciences from the University of Texas at Dallas.

Holly Wilhelm, Research Coordinator, began working as a test administrator at the Foundation's Atlanta office in 2005. She organizes the details of the digitalization project and other research initiatives.

THANK YOU

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