

Psychology

Psychology>Industrial-Organizational Psychology>Industrial-Organizational Psychology History>Army Alpha and Army Beta

Army Alpha and Army Beta

The United States entered World War I late in the conflict and faced the problem of turning large numbers of often poorly educated draftees into an effective army in a short period of time. The American Psychological Association volunteered its services to the war effort, and a committee, headed by Robert Yerkes and including psychologists such as Arthur Otis and Lewis Terman, was assigned the task of developing a practical method of measuring the intellectual level of individuals in large groups. Their efforts led to the development of two tests, Army Alpha and Army Beta. Army Alpha was a written test that could be administered to large groups of recruits and that provided a rough measure of general intelligence. Army Beta, a nonverbal test designed for illiterates and for recruits who spoke little or no English, could also be administered to groups and used simple pictorial and nonverbal instructions.

Army Alpha was made up of 212 true-false and multiple-choice items, divided into eight subscales: (a) oral directions, which assessed the ability to follow simple directions; (b) arithmetical problems; (c) practical judgment problems; (d) synonym-antonym items; (e) disarranged sentences, which required subjects to rearrange fragments into complete sequences; (f) number series completion, which required examinees to infer and complete patterns in series of numbers; (g) analogies; and (h) information, a general knowledge subtest. The most basic purposes of Army Alpha were to determine whether recruits could read English and to help in assigning new soldiers to tasks and training that were consistent with their abilities. Several of the scales and test formats developed by Yerkes and his colleagues for Army Alpha are forerunners of tests still in use today.

Many draftees were unable to respond to written tests, because of their limited literacy or their limited command of English; Army Beta was developed to assess the abilities of these examinees. The instructions for the Beta test were given in pantomime, using pictures and other symbolic material to help orient examinees to the tasks that made up this test. Army Beta included seven subscales: (a) maze, which required looking at a graphic maze and identifying the path to be taken; (b) cube analysis, which required counting cubes in the picture; (c) X-O series, which required reading symbol series to identify patterns; (d) digit symbol, which required matching digits and symbols; (e) number checking, which required scanning and matching graphic symbols in numeric forms; (f) picture completion, which required examinees to identify features required to complete a partial picture; and (g) geometrical construction, which required examinees to manipulate forms to complete a geometrical pattern.

Administration and Use of Army Alpha and Army Beta

The Army Alpha and Army Beta were administered to more than 1.5 million examinees. Scoring guidelines were developed with the aim of making Army Alpha and Army Beta roughly comparable. Scores on both tests were sorted into eight order categories (A, B, C+, C, C-, D, D-, E). Those with the lowest letter grade were generally considered unfit for service. Examinees receiving grades of D or D- were recommended for assignment to simple duties, working under close supervision. Examinees with scores in the middle of the test score distribution were recommended for normal soldier duties, whereas men receiving higher scores were recommended for training as non-commissioned officers and for officer training.

Army Alpha and Army Beta were perceived as useful at the time they were introduced. These tests provided at least a rough classification of men, which was of considerable utility in making the large number of selection decisions necessary at that time. The apparent success of the army's group tests did not go unnoticed in business circles and educational settings. Soon after the war, the demand arose for similar tests in civilian settings; by the mid- to late 1920s, intelligence testing was widespread, particularly in schools.

Controversy over Army Alpha and Army Beta

The use of psychological tests to make high-stakes decisions about large numbers of individuals was controversial at the time these tests were developed, and Army Alpha and Army Beta continue to be sources of controversy. First, many of the psychologists who developed these tests were extreme proponents of hereditarian points of view and often were enthusiastic supporters of the eugenics movement. Yerkes and his colleagues used Army Alpha and Army Beta data to argue against immigration and racial mixing, claiming that the addition of intellectually inferior races and groups to the American melting pot was responsible for what they regarded as low levels of intelligence in the American population. Psychologists involved in the development of Army Alpha and Army Beta played a prominent role in supporting legislation after World War I that greatly curtailed immigration.

Second, serious doubts were raised about the validity and the utility of both tests, particularly Army Beta. Despite efforts to train test administrators, Army Beta could be a particularly intimidating and confusing experience, and it is unclear whether this test provided useful information. More generally, evidence that Army Alpha and Army Beta actually contributed to the success of the army in assimilating and training the vast group who were tested is thin. In part, the problem lies with the fact that the United States entered the war so late that the success or failure of this test was simply hard to gauge. Army Alpha and Army Beta were a tremendous administrative success—they allowed the army to quickly process huge numbers of recruits. However, this set of recruits barely had time to receive training and were mustered out of the army shortly after the conclusion of the war. The hypothesis that the use of these tests led to better decisions than would have been made using more traditional (largely subjective) methods of classification simply could not be tested during World War I. The documented validity and utility of successors to Army Alpha and Army Beta suggest that these tests were likely to make a real contribution, but definitive data about the impact of these tests does not exist.

Finally, controversy over Army Alpha and Army Beta reflected broader controversy over the value (if any) of psychological testing in general and intelligence testing in particular. Early proponents of psychological testing sometimes made extravagant claims about the value and the importance of these tests, and there was a substantial backlash against the more sweeping claims about the importance, validity, and implications of tests like Army Alpha and Army Beta.

References:

1. Jensen, A. R. (1998). *The g factor*. Westport, CT: Praeger.

2. Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, 124, 262-274.
3. Waters, B. K. (1997). Army alpha to CAT-ASVAB: Fourscore years of military personnel selection and classification testing. In R. F. Dillon (Ed.), *Handbook on testing* (pp. 187-203). Westport, CT: Greenwood Press.



Hawthorne Studies and Hawthorne Effect →

PSYCHOLOGY RESEARCH AND REFERENCE



Industrial-Organizational Psychology History

[Army Alpha and Army Beta](#)

[Hawthorne Studies and Hawthorne Effect](#)

[I-O Psychology in Europe and the UK](#)

[I-O Psychology in North America](#)

[I-O Psychology in Other Parts of the World](#)

[Human Relations Movement](#)

[Project A](#)

[Scientific Management](#)

[Scientist-Practitioner Model](#)

[Trade Unions / Labor Unions](#)