

11—Human Behavior and Safety

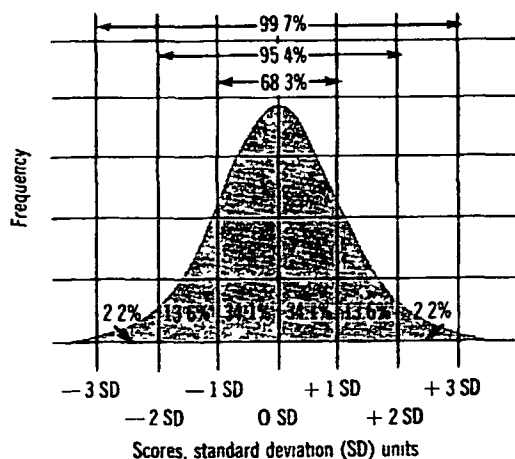


FIG 11-1 —The distribution of scores in a normal curve. Since the normal curve has a known shape, it is possible to state the percentage of scores that lie between $+1$ and -1 standard deviation, or between any other two points expressed in SD units. This normal curve might represent the distribution of IQ scores in the United States, in this case, the mean would be 100 and the standard deviation would be approximately 15. Given the mean and standard deviation, therefore, the complete distribution of scores in a normal distribution can be known.

other person (although there are certain common characteristics). The fact that individual differences exist should not be news. What is important is how one deals with individual differences.

Fig 11-1 presents the distribution of scores in a normal curve. Many human traits (for example IQ) are assumed to be distributed according to the normal curve distribution. Note that in such a distribution, half of the persons are below the mean (the arithmetical average) and half of the persons are above the mean. While the trait is relatively systematic and the extremes are relatively rare, nevertheless only a portion of the population has an average amount of the trait.

Often the manager of an enterprise or director of a safety program realizes that individual differences exist and that it is physically impossible to handle every one individually. Therefore, he will do what he feels is the next best thing—appeal to the average-man. There

is, unfortunately, no such thing as an average-man. By definition, average means that a measured trait is possessed by 50 percent and absent in the remaining 50 percent of those measured. Therefore, when an appeal is aimed at the average, by definition it misses much of the population.

A better approach is the use of percentiles. When designing the system, instead of setting the standards to fit the average, design it to fit all but the upper 5 percent and the lower 5 percent. Then the system will fit 90 percent of the population.

The use of percentiles, rather than averages, has long been the technique for relating individual test scores to a group as a whole, and also a guiding rule in the design of man-machine relations.

Fitting the man to the job

Very often when managers are replacing or relocating personnel, they strive to find the individual possessing most of the characteristics deemed necessary. Job specifications and employee requirements are given in terms of a minimum, but very seldom are psychological factors expressed within a minimum and maximum.

When looking for someone, often the best qualified is considered to be the one who is most intelligent, most loyal, biggest, or whatever. In other words, they look for the perfect rather than the right person. However, a person with a below-average IQ might be more desirable for a monotonous job than will a person with an average or above-average IQ. The amount of boredom, monotony, etc., may be less for the less bright, thereby eliminating carelessness.

The same is true for loyalty and devotion. The person who comes to work under any condition, whether ill or not, may be as undesirable as the one who uses every excuse to take off. The worker with a high fever, bad cold, or sore back is a potential hazard, especially if he is under heavy medication.

Influences of differences on safety

The problem of individual differences has been related directly to the problem of safety in industry. For some years, safety professionals and psychologists alike explored the concept of accident proneness. It was be-