

# Normal distribution and probability essay

[Business](#), [Marketing](#)



Statistics can only be useful if the person who receives the data knows how to interpret the different statistical measures and the most basic understanding of statistics must at least include the familiarity of the concept of normal distribution. The normal distribution refers to how the data in a certain test or survey is distributed normally, in the sense that 60 percent of the scores fall within the center and 20 percent are in the highest end and the other 20 percent is in the lowest end (Aron & Aron, 2003). The normal distribution has been famous in the name of the normal curve which is a bell shaped curve wherein the points with which scores or data values are plotted fall within the general normal distribution. To illustrate, take the case of a marketing researcher for a famous brand of cereals.

He would like to study the cereal consumption of a state that was showing an increase in sales to that of the state where the sales had been consistently average. Thus, the manager sets out to gather data by surveying some 5, 000 respondents in the 5 largest counties in the said state. The survey directly asked how many actual boxes of cereals a single family consumes in one week. The respondents were asked to indicate their responses by reporting the number of boxes consumed, the highest was 7 while the lowest was 1. The variable under study was the cereal eating behavior of families, the responses will be whole numbers and the scale of measurement is ratio data since it is ordered and constant and has a natural zero (Bennett, Briggs & Triola, 2003). The results of the analysis of the number of boxes of cereal eaten in a week are arranged and a frequency table was derived wherein it was found that the values were normally distributed owing to the large number of data. When the sample is

large then it is expected that all the scores are equally represented. This is where the understanding of probability is important.

Probability refers to the point in the distribution that each score would appear or be present among all the other scores or the probability that a certain score will appear in the distribution (Gravetter & Wallnau, 2004). In other words, probability is similar to the concept of chance like between four options we would say that the probability of the right answer to be chosen by the participant is 1 out of 4 or  $\frac{1}{4}$  or 25%. Thus, in the number of cereal boxes consumed, the mean would give us an idea of the average number of boxes consumed by the families while the probability would estimate the chances of the families to eat cereal for the day. This meant that the probability that the families in this state will consume one box of cereal a week is 1 out of 5000. Probability therefore is the frequency of chances that a certain value or behavior may occur. This can be plotted in the normal curve, and the  $P = 0.05$  had been used to identify at what point the scores will be repeated or has occurred by chance.

If the value is greater than 0.05 then it could be said that there are no changes in the eating behavior of families; when the value is lesser than 0.05 then it could be said that there exists a chance that the eating behavior has changed due to some cause. References Aron, A.

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