

1116-VP-1360      **Howard Troughton\*** (htroughton@babson.edu), 374 GREAT ROAD, UNIT 12, Acton, MA 01720. *Using Minitab to Demonstrate the Central Limit Theorem (CLT).*

Many statistics students confuse sampling distributions with the distribution of the original data. This confusion prevents them from fully appreciating the importance of the CLT, causing later difficulties understanding the subtleties of inferential statistics. In this session I will demonstrate the method I use in my introductory statistics class to address this.

When introducing sampling distributions I start with a population parameter that is assumed to be known (for example height of students on a college campus), but the population distribution is not known. We use Minitab to generate hundreds of thousands of samples for a fixed sample size under three different assumptions for the population distribution (normal, uniform and strongly skewed).

Students generate the sampling distribution histograms and summary statistics to compare values of  $\mu$  and  $\sigma$  with  $\mu_{\bar{X}}$  and  $\sigma_{\bar{X}}$  (actually they are comparing to  $\bar{X}_{\bar{X}}$  and  $s_{\bar{X}}$ ).

By generating samples students gain a better understanding of the difference between the underlying population and the distribution of sample means. Furthermore, using different hypothetical population distributions students gain insight into how the CLT can be applied to any population. (Received September 18, 2015)