# Chapter 8: Summarising Your Data – Measures of Central Tendency and Dispersion

## *Assignment*

The following lists the values requested in the assignment for this chapter. The variable list is given below with the type of variable shown against it. Only those listed as interval should have been included in your calculations.
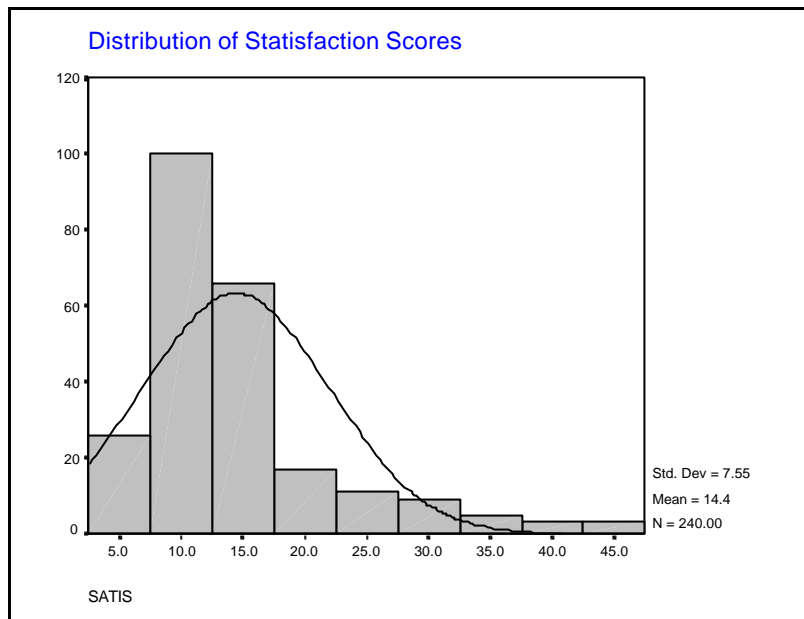
| Variable | Type |
|----------|------|
| COURSE | Nominal |
| AGE | Interval |
| GENDER | Nominal |
| ENCOUR | Ordinal |
| POSITIVE | Ordinal |
| CONT | Ordinal |
| CHALL | Ordinal |
| INVOLVE | Ordinal |
| VALUED | Ordinal |
| OPTIMISM | Ordinal |
| SATIS | Interval (on the basis that it is derived by aggregating the previous 7 variables) |

This means that there are only two interval variables. The table below sets out the statistical indicators requested (plus the minimum and maximum values that were not required but are useful to look at.
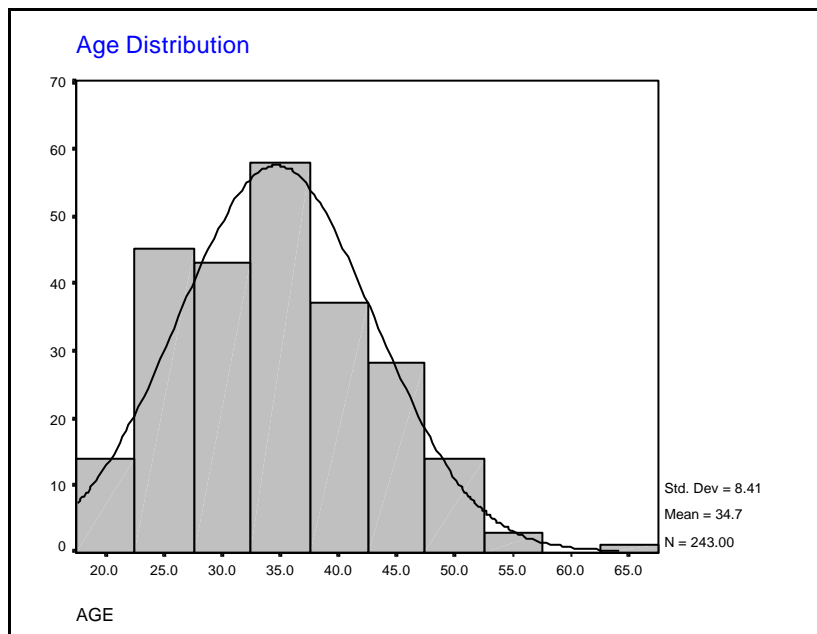
| Measure | AGE | SATIS |
|---------|-----|-------|
| Mean | 34.66 | 14.41 |
| Std. Error Mean | 0.54 | 0.49 |
| Median | 35 | 12 |
| 1$^{st}$ Quartile | 28 | 10 |
| 3$^{rd}$ Quartile | 41 | 16 |
| Interquartile Range | 13 | 6 |
| Minimum Value | 21 | 7 |
| Maximum Value | 64 | 44 |
| 95% confidence limits for mean | 33.58 – 35.74 | 15.39 – 13.43 |

On face value, the age distribution appears to be fine with the mean and median values very close together, but there does appear to be some positive skew to the SATIS variable indicating a slight imbalance in the distribution towards the lower end of the scale. This would indicate that a higher proportion of relatively lower scoring group within the sample are being offset by a relatively smaller proportion of higher scoring individuals. The maximum value possible is 49 and the lowest possible value is 7. One might expect the two extreme ends of an aggregated scale to be 'clipped' off the

measure because they would be obtained if an individual scored the minimum or maximum scores respectively on every component variable. It is interesting to note that at least one individual scored the minimum values, but no one scored the maximum values on all component variables. A look at a histogram of this variable may shed some light.



The line is the distribution curve superimposed on the histogram. Note that there is indeed a positive skew towards the lower end of the satisfaction scale. Compare this with the histogram of age distribution.



The age distribution of respondents is normally distributed (the minimum age of this population was 21).