

Chapter 3: Descriptive Statistics and the Normal Distribution

Scales of Measurement

- Nominal
 - Name or classify
- Ordinal
 - Order or rank
- Continuous
 - Interval
 - Equal units
 - Arbitrary zero
 - Ratio
 - Absolute zero

Summation Notation

- \sum is read as the sum of
- X is an observed score
- N is the number of observations

Order of Operations

Summation Notation

1, 1, 4, 2, 2, 2, 3, 3, 2, 1

Percentile

Central Tendency

- Mean
- Median (P_{50})
- Mode

Distribution shapes

Bowling Scores

Interval	Frequency	Percent	Percentile
158-164	1	0	100
151-157	2	1	100
144-150	11	4	100
137-143	15	6	96
130-136	23	9	90
123-129	27	11	81
116-122	32	13	70
109-115	37	15	57
102-108	31	12	42
95-101	36	14	30
88-94	24	9	16
81-87	9	4	7
74-80	3	1	3
67-73	4	2	2

Three Symmetrical Curves

Variability

- Range
 - Hi to low scores
- Variance
 - Represented by a box. See figure 3.6 on page 41.
- Standard Deviation
 - The square root of the variance

Variance

Standard Deviation

Standard Scores

- z score
- T score
 - $T = 50 + 10 * (Z)$
- Use of standard scores
- Normal distribution of scores

Table 3.3 Normal-Curve Areas

- ❑ Z scores are on the left and across the top
- ❑ Values in the body of the table are a percentage between the mean and a given standard deviation distance
- ❑ The reference point is the mean

Normal Curve Practice

- ❑ Z score
- ❑ T score
- ❑ Percentile
- ❑ Raw score
- ❑ Hints
 - Draw a picture
 - What is the z score?
 - Can the z table help me?

Combined Sample Statistics

SPSS Examples