Figure 2-12 **Pareto Chart: What Contributes Most to Happiness?**

Pie Charts

A **pie chart** is a graph that depicts categorical data as slices of a circle, in which the size of each slice is proportional to the frequency count for the category.

Example 9   **Pie Chart: What Contributes Most to Happiness?**

Figure 2-13 is a pie chart corresponding to the same data from Example 8. Construction of a pie chart involves slicing up the circle into the proper proportions that represent relative frequencies. For example, the category of friends accounts for 13% of the total, so the slice representing friends should be 13% of the total (with a central angle of $0.13 \times 360° = 47°$).
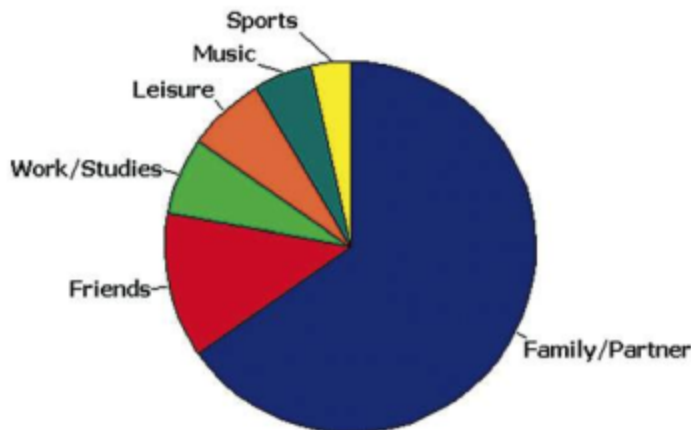

Figure 2-13 **Pie Chart: What Contributes Most to Happiness?**

The Pareto chart in Figure 2-12 and the pie chart in Figure 2-13 depict the same data in different ways, but the Pareto chart does a better job of showing the relative sizes of the different components. Graphics expert Edwin Tufte makes the following suggestion:

> **Never use pie charts because they waste ink on components that are not data, and they lack an appropriate scale.**

Frequency Polygon

A **frequency polygon** uses line segments connected to points located directly above class midpoint values. A frequency polygon is very similar to a histogram,