that could have been used (for instance, 0, 1–5, 6–10, 11–15, 16–20, 21–30).

When deciding what intervals to use in a frequency question, the first important notion is that zero should be its own separate category. Once this is established, one important consideration is that the response categories provide wide discrimination across the entire range of responses. For example, if a pilot test showed that most people will eat beef four or fewer times in the next month, the categories might be 0, 1, 2, 3–4, 5–15, 16–30. If the mean is more around ten, then the categories should be more spread out.

Another issue is how many categories should be offered. Despite a number of theoretical considerations, this is generally determined by assessing how much space one wants to use in conjunction with what categories can provide the greatest differentiation. If the intervals are spaced out to maximize variation (through use of pilot tests), fewer boxes will be needed. If precision is a concern, use fill-in-the-blank questions.

When You Should Ask Likelihood Questions Instead of Frequency Questions

As noted, measures of behavioral intentions (for a particular time period, such as "within the next month") can be obtained either through likelihood measures or through frequency estimates. Likelihood measures can be directly obtained by asking respondents how likely ("Highly Unlikely" = 1 to "Highly Likely" = 9) they are to perform that behavior within a given time period. Behavioral intentions can also be measured by asking respondents to estimate the number of times they might perform that behavior within a similar time period.

These two different measures of behavioral intent have different relative strengths. With infrequent behaviors, frequency estimates will be skewed toward 0 (especially over a relatively short period of time). This is partially a drawback of numerical estimates that provide no gradation between 0 and 1 unit. In such cases, frequency

estimates would provide less variance and less information than an estimate of likelihood. As a result, likelihood estimates would allow a greater gradation in response and would be more sensitive.

In contrast, with frequent behaviors, a frequency estimate will be more accurate than a likelihood estimate. The reason is that frequency estimates are more likely to be normally distributed. As a result, a frequency estimate is likely to provide more variance and more information than is a likelihood measure, which would undoubtedly be at or near 1.0 (100 percent probable). Under these circumstances, frequency estimates would more accurately correspond with actual behavior.

One study (Wansink and Ray, 1992) examined situations when likelihood questions were preferable to frequency questions by asking people to estimate their upcoming three-month consumption of a number of different products. Three months later, respondents were contacted again and asked for their actual (recalled) consumption. For products they frequently consumed (frequent behaviors), numerical estimates were much more accurate than likelihood estimates. For products they infrequently consumed (infrequent behaviors), likelihood estimates were more accurate than numerical estimates.

What happens when there is high variation in the frequency of behavior? One solution is to use both likelihood and a frequency estimation measure and use them to triangulate on the behavior. Instead of taking one measure, take both measures along with a measure of how frequently respondents report this behavior for a prior time period (week, month, year, etc.). The measure of respondents' prior behavior can be used to divide the population into frequent or infrequent exhibitors of that behavior. If one is trying to compare multiple behaviors (mall walking vs. golfing vs. going to the gym), or behavior toward certain stimuli (like various ads), analyzing the frequent users separately from the infrequent users can be useful. It is also important when analyzing these data to drop nonusers from the analysis. Be sure, however, to report that those not using the product were eliminated.