Scale ratings always betrayed by arithmetic

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RESEARCH

say we have been using a five-point rating scale in our customer satisfaction
surveys, and our research director wants to switch to a more sensitive 10-point scale.
For trend presentations, he plans to make the old ratings comparable by doubling
them.
That doesn't work. One
reason is plain arithmetic: The midpoint of
the old scale is three; the midpoint of the one-to-10 scale is not six. The new scale
has nine intervals; the old scale had four.
The formula to make the old ratings (or "FP") comparable to the new—at least arith-
metically—is N = (5/4) (F-1). That yields the correct midpoint of 3.5 and the
correct extremes one and 10.
But arithmetic is not the major reason why the conversion doesn't work. Arith-
metic works on real numbers like physical counts and measures. Real numbers (in
both span or interval scales, each number is exactly one more than the preceding
one, or a card-
tinal one (each number is exactly one higher than the preceding one, an equal-interval
scale). Scale ratings are ordinal, but we don't know, and cannot tell, whether they
are equal-interval scales. We just hope they are because all our statistical manipula-
tions, from averaging to multivariate analy-
sis, depend on it.
We don't know how respondents use the scale. Do they select their rating in terms of
how far it is below the top of the scale, or how far above the bottom or relative to the
midpoint (which they exactly mid between in an

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- Oct. 23 is the deadline for submissions for the Dec. 6 issue, which will feature a
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