The Top-Ten Effect: Consumers’ Subjective Perceptions of Rankings

Mathew S. Isaac, Seattle University, USA
Robert M. Schindler, Rutgers University-Camden, USA

A series of field and laboratory studies indicates that consumers tend to mentally partition uncategorized lists of ranked items, such as Businessweek's rankings of top MBA programs, into round-number categories. This tendency causes consumers to exaggerate the perceived distance between category-bordering ranks, such as rank 10 versus rank 11.

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EXTENDED ABSTRACT

Lists of ranked items (e.g., Business Week’s top 25 MBA programs, Car and Driver’s top 10 cars) are ubiquitous in Western culture. From a consumption standpoint, there is considerable evidence that individuals find these lists informative and influential. Therefore, it is important to know exactly how the information provided in ranked lists is interpreted by users. Because a ranking is an ordinal scale of measurement, there is no technical reason why an information user should interpret items at adjoining ranks as having equal differences in the ranked attribute. Yet, in the absence of specific information about the ranked items, this equidistance seems reasonable for the information user to assume. In fact, even academic researchers have utilized linear functions that imply equidistance when modeling the effects of changes in an organization’s rank on the outcomes and policies of the ranked organizations (Monks and Ehrenberg 1999a, b).

In this research, we propose the existence of a cognitive bias that overrides the presumption of equidistance between adjacent ranks in the interpretation of ranked lists. This bias, which has important implications for consumer evaluations of items presented in a ranked list, emerges due to our tendency to see complex and unorganized arrays, such as long lists of numbers, in terms of a smaller set of categories. A consequence of this tendency to categorize is an exaggeration of the perceived differences between items at adjoining ranks that cross category boundaries.

What are the possible categories that might be formed by consumers when processing unorganized ranked-list information? One possibility, supported by research on multidigit numerical processing and price-response judgments (Poltrock and Schwartz 1984; Thomas and Morwitz 2005), is that individuals see ranked lists in terms of categories based on the value of a rank’s leftmost digit. For ranks up to 100, such place-value categories would consist of ranks 1-9 (0 as the tens digit), ranks 10-19 (1 as the tens digit), ranks 20-29 (2 as the tens digit), and so on. An alternative possibility is that individuals see ranked lists in terms of categories based on round numbers. In our decimal number system, round numbers are those that are multiples of 10 (such as 10, 20, 30) and halfway points between these multiples (e.g., 5, 15, 25). Support for this possibility is provided by the extensive evidence for the cognitive salience of round numbers (Coupeland 2010; Dehaene and Mehler 1992; Jansen and Pollmann 2001). For ranks up to 100, such round-number categories would consist of ranks 1-5 (i.e., the top five), ranks 1-10 (i.e., the top ten), ranks 1-15 (i.e., the top fifteen), ranks 1-20 (i.e., the top twenty), and so on.

Across three studies, we provide evidence that information users do in fact spontaneously form categories to interpret unorganized ranked lists. Furthermore, we show that round-number categories, and not place-value categories, are typically created when considering ranked lists. We refer to this as the top-ten effect since “top ten” lists are among the most prevalent round-number categories.

In Study 1, we used a longitudinal data set with 2,026,975 records provided by the Graduate Management Admissions Council (GMAC), the organization that administers the GMAT exam that is typically required prior to business school admission. We conducted a series of regressions to assess the relationship between yearly changes in a school’s rank on the U.S. News & World Report list and yearly changes in the number of GMAT score reports that were sent to the school by GMAC (a proxy for completed applications). We found a significant and direct effect of a positive round-number category shift on the year-to-year change in number of GMAT score reports sent to a particular school. Whereas traversing a round-number category boundary (e.g., improving one’s rank from number 21 to 20) affected the number of GMAT score requests (and presumably, the number of subsequent applications) that a school received, place-value category shifts of similar magnitude (e.g., improving one’s rank from number 20 to number 19) had no such effect.

Study 2 shows that evaluations of an identical target differ when its position on a ranked list is varied between participants. More specifically, when judging the math ability of a student with a rank of 8, 9, 10, 11, or 12 on a list of 28 students, between-round-number-category rank differences (i.e., 10 vs. 11) exerted greater impact on information users’ evaluations of the target than equivalently sized within-round-number-category differences (i.e., 8 vs. 9, 11 vs. 12). Further, we found no evidence that between-place-value-category rank differences (i.e., 9 vs. 10) exerted greater impact on evaluations than within-place-value-category rank differences.

In Study 3, we attempted to isolate a psychological mechanism underlying the top-ten effect. Given our hypothesis that the effect occurs because round-number categories (e.g., top 10) are cognitively accessible to consumers because of their prevalence in everyday communication, we made an attempt to eliminate the effect by reducing the accessibility of round-number categories. We implemented this by temporarily increasing the accessibility of ranked lists that highlight “sharp numbers” (Dehaene 1997) rather than round ones, such as the “top 101” or the “top 49” in a priming task. When the cognitive accessibility of round number categories was high, we replicated the effects of prior studies. However, as predicted, when the cognitive accessibility of round number categories was low, the top-ten effect was eliminated.

This research provides converging evidence that information users tend to form round-number categories (and not place-value categories) when presented with an unorganized ranked list. This tendency to generate round-number categories results in an exaggerated difference in evaluations of items that traverse a round-number category boundary. Because consumers create mental partitions along round-number category boundaries (e.g., top ten), the evaluative distance between adjacent items on opposite sides of this partition (e.g., 10 vs. 11) exceeds the distance between adjacent items that fall into the same round-number category (e.g., 9 vs. 10). In addition to enriching our understanding of categorization and numerical cognition, this research has important managerial implications because ranked lists are so pervasive in marketing communications.

REFERENCES


