



*Classics*

**Richard Trueswell's Contribution to Collection Evaluation and Management: A Review**

**A Review of:**

Trueswell, R. L. (1969). Some behavioral patterns of library users: The 80/20 rule. *Wilson Library Bulletin*, 43(5), 458-461.

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**Abstract**

**Objective** – To demonstrate the relationship between library circulation and the percent of a library's holdings satisfying circulation.

**Design** – Retrospective cohort study of library circulation data.

**Setting** – Cambridge and Northampton, Massachusetts, United States of America.

**Subjects** – The users of the monographic holdings of the Air Force Cambridge Research

Laboratory Library and the Forbes Public Library.

**Methods** – Trueswell compiled circulation data from the Air Force Cambridge Research Laboratory Library over a period of 5 years, ostensibly from 1964-1969. Additionally, he gathered circulation data from Forbes Public Library. Trueswell compared each respective collection of data against the entire holdings of each library, after which he converted each measure to a percentage of the whole.

**Main Result** – Based on the collected data, Trueswell found that the percentages of both

libraries' holdings that satisfy circulation follow a power law distribution. He compared this with a previous study measuring journal circulation at a Health Sciences Library that exhibited the same pattern. He stated that these similar distributions demonstrated the "80/20 Rule." The distribution is such that any given percent of circulation will provide the percent of a library's circulating holdings necessary to satisfy it. Additionally, Trueswell found that 75 percent of current circulation had circulated at least once within the preceding year.

**Conclusion** – The findings have implications for core collection development, purchasing multiple copies of a given title, determining the optimal size of a library's collection, and weeding. Trueswell also submits the idea of developing regional interlibrary loan centers for books that do not circulate often, as a cost saving measure for most libraries.

### **Commentary**

Richard Trueswell introduced a practice-changing methodology of evaluating library material usage and making collection management decisions based on data with the publication of "Some Behavioral Patterns of Library Users: The 80/20 Rule." In doing so, he also introduced concepts derived from business inventory and return-on-investment approaches to selection.

Trueswell's was not the first paper that investigated core titles which garner the majority of use within libraries. Postell (1946) studied journal check outs and requests at the Louisiana State University Medical Library. He found that local use patterns of library material provide more accurate data for evaluating journals, supporting the conclusion proposed by Estelle Brodman (1944) that the prevailing method of journal evaluation promulgated by Gross and Gross (1927) was unscientific. For further review of these studies, see Eldredge (2008).

Fleming and Kilgour (1964) reported on a core collection of biomedical journal titles that satisfy the majority of usage at both Columbia and Yale medical libraries. The authors confirmed that such a subset of journals exists at their respective libraries. Trueswell repurposed part of their data in his classic article to demonstrate the principle that about 20% of the entire holdings for these libraries satisfied about 80% of the use of journals. Fleming and Kilgour noted that their results may generalize to other scientific libraries, but did not claim their findings constituted a rule or natural law.

Trueswell's methodology of studying book circulation and non-circulation, and the postulation of the 80/20 Rule, marked the beginning of a large body of material use studies in the library literature. The famous, or infamous, "Pittsburgh Study" found that 40% of monographs acquired by the University Library at the University of Pittsburgh in 1969 did not circulate in the following 6 years (Kent, 1979). This study formed the basis for the maxim that only 40% of books will circulate. This was followed up with a study by Hardesty (1981) who attempted to replicate the Pitt study at small liberal arts college with similar findings. Another study in an academic health sciences library reported similar results (Fenske, 1994).

Eldredge (1998) conducted a circulation study of monographs acquired during a 5-year period at an under-resourced and "relatively 'young'" health sciences library and found that the majority (84%) of monographs added to the collection during the period of January 1 – December 31, 1993 circulated at least once within 4 years of purchase. In a similar study, Bleic (2000) found that roughly 81% of monographs added to the collection during the time between mid-August, 1994 and mid-August, 1995 circulated at least once. Bleic noted that significantly more monographs were required to meet the 80% circulation mark: 38% of monographs rather than 20%, a number that closely resembles Eldredge's findings of 36%.

Eldredge (1998) described a variant of the 80/20 Rule (which was, and still often is, inaccurately termed “The Pareto Principle”) by detailing Joseph Juran’s “Vital Few and the Trivial Many” principle, which states, briefly, that a small group of a total population exerts disproportionately larger effect than the rest (as cited in Eldredge, 1998). Based on the evidence reported by Eldredge and Blecic (2000), the Vital Few explanation seems more likely over the stricter 80/20 quantity, at least for medical libraries.

Trueswell garnered attention during the 1970s, perhaps because of the 80/20 Rule or the Pittsburgh Study, and this may have been the impetus behind studies critical of his methodology. In one slightly inflammatory paper, Trueswell’s techniques were criticized as “either meaningless or fallacious” (Sargent, 1979). Trueswell responded to this claim in an invited

letter that his methods were often misunderstood, and attempted to show where Sargent misapplied his ideas (Trueswell, 1979). Later, Turner (1980) detailed misapprehensions of Trueswell’s methodology in an attempt to point out where his techniques have value, noting that “[s]tatistical techniques are meant to be filtering systems” and “*are not ends in themselves* as Trueswell has mentioned in much of his published work” (emphasis in original, p. 137).

The 80/20 Rule seems to have taken on a life of its own, and the intention behind it got lost in the shuffle. Trueswell (1969a) himself noted in his classic that “[t]he rule is sometimes expressed as the 75/25 rule with the same interpretation” (p. 458) indicating it was never meant to be an exact formula. In a study examining the proportion of library users and total circulation, Trueswell (1968) noted that “The salient point of the study is the fact that a very small proportion of the active borrowers accounted for a very large segment of the circulation” (p. 493). Furthermore, the literature

of the 80/20 Rule may suffer from varying levels of bias. Many of the studies reporting on the 80/20 Rule use diverse parameters for data collection, which can lead to information bias. Trueswell (1969) examined the percent of circulated titles satisfying circulation, whereas Eldredge (1998) and Blecic (2000) used monographs acquired during a specific period, for example. Fenske (1994) seemed to intuit that perhaps loose parameters would bias her sample (arguably, they did), but she did not make the appropriate adjustments to her data. Eldredge (1998) likely designed his study to mirror Kent’s (1979) study to discern whether those findings applied to health sciences libraries. Likewise, Eldredge (1998) incorporated in-house use with circulation data to show that even more books were used when other forms of “use” were tallied than just circulation. Trueswell’s and Kent’s methods relied solely on circulation data.

Reporting bias may also exist. Trueswell (1969b) noted that heavily used books would need new book cards more frequently, perhaps leading to the destruction of the full cards prior to tabulation, and many librarians are familiar with “helpful” patrons who reshelve their own materials after using them in-house, resulting in under-reporting this use.

Nisonger (2008) summarized an extensive, but not comprehensive, selection of studies that reported on the 80/20 Rule. In a subset of 19 articles reporting on the concentration of titles in print serials usage, Nisonger (2008) showed that most approximated the 80/20 Rule but noted that “the 80/20 numbers are not expected to work out precisely” (p. 65). However, averaging the ratio of the percent of titles that account for a percent of use from Table 1 (pg. 66) yields a proportion of 0.316, notably higher than the 0.25 expected from the 80/20 Rule. This means that roughly 25% of material would be required to satisfy 80% of usage ( $80 \times 0.316 = 25.28$ ), based on those 19 studies.

This may seem like splitting hairs, especially if the 80/20 Rule is not meant to work out precisely. Yet, if the rule is applied to a large collection, say the University of Illinois at Urbana-Champaign, who recently surpassed their 13 millionth volume ("13-millionth volume acquired," 2012), that extra 5% can add up to a very large number. Even if only 40% of volumes circulated within the past five years, the unaccounted for 5% works out to 260,000 extra volumes ( $(13,000,000 \times 0.4) \times 0.05 = 260,000$ ). Determining material to weed or relocate based on the 80/20 Rule for an institution this size could lead to costly, negative results. It is thus misleading to represent library material usage as always fitting an 80/20 Rule, and there is no compelling reason to abide the imprecision of such a generalization. Any given library can expect variation in the usage of materials, the main point being that there will be a disproportionate pattern in that usage.

Despite the conflicting evidence, the 80/20 Rule pattern has been observed generally in or applied to many circumstances surrounding libraries and usage of library materials, a few of which follow by way of example. In addition to Trueswell's classic, Britten (1990) applied the 80/20 Rule to usage amongst specific LC classes within an academic library to help determine where and how much to allocate to new purchases. Another study observed that cumulative use across an academic consortium in the North Eastern United States exhibited a near 80/20 trend (Davis, 2002). More recently, Singson and Hangsing (2015) observed the same trend in usage of electronic journals across an academic consortium in India. Nisonger (2008) provides many more examples.

It is worth mentioning just how tricky it is to measure use, both of print as well as electronic resources. As noted above, book cards get lost, patrons reshelve their books, or statistics from the previous year accidentally get expunged. With the advent of e-books, a one-to-one comparison between the formats becomes nearly impossible to make. Each time any part of an e-

book is accessed, a use is recorded, whereas each time a print book is checked out, a single use is recorded. Someone who checks out a print book is likely to open the book, or "access it," more than once during the checkout period, skewing any such usage studies, similar to a situation where a study does not account for in-house use in the final tally. While use data can be helpful in demonstrating trends, caution must be exercised in decision making and when interpreting study results.

Regardless, analyzing the usage statistics to determine which resources are being used is a common tactic in library collection management (Blake & Schleper, 2004). Depending on the mission, ensuring that the library sees a return on investment for journals and books is important due to limited financial resources. Additionally, as many journals and books are bundled together, it can be instructive to examine which titles in a bundle are more heavily used than others in the same bundle. This type of analysis may help in determining whether to "break up the big deal" (Blecic, Wiberley, Fiscella, Bahnmaier-Blaszczak, & Lowery, 2013)

Mostly absent from Trueswell's work is why such disproportionate patterns are visible in collections usage. Eldredge (1998) included potential explanations by comparing student to book ratios and overall customer to book ratios between his library and libraries from other studies. In addition, he drew from other research to explain why health sciences students engaged in Problem Based Learning might compete more heavily for library resources, which may help to explain higher use. Among the libraries he studied, Burell (1985) reported that lower than average borrowing rates constituted the need for a larger proportion of the collection to make the 80% figure.

Current research into book use and selection is promising. Investigation into e-book usage at a large university library revealed that catalogue records that include table of contents and

summary notes have a much higher probability, over 80%, of being used than those without these features (Harker & Sassen, 2015). These results may imply usage trends are neither static, nor can they be generalized across platforms. Fry (2015) provides a critical look at many claims about apparent lack of book circulation made over the past decade that have been used as the basis to shift collecting practices or claim that collection development conducted by librarians is inherently faulty. Fry (2015) concludes that such claims are not made based on data, but made by “persuasive proponents and a publishing industry eager to sell e-books and control content” (p. 19).

While his classic article is perhaps most famous for the 80/20 Rule, Trueswell also introduced ideas about joint library facilities that are being actualized. For example, Texas A&M University System and the University of Texas System have developed a shared space as a cost and space saving measure (“New Texas A&M-University of Texas Systems joint library facility proving broadly successful,” 2014). As print continually goes out of vogue, particularly for journals in science and medical libraries, repurposing space within the building may take priority. A collaboration exists between the National Library of Medicine and participating medical libraries to preserve a core of print journal titles, allowing participating libraries to keep an agreed upon selection of journal runs and to discard or otherwise remove from the building the rest of their journal volumes (Fishel & Collins, 2011). This approach ensures preservation as well as potential ILL availability for titles in this program. While Trueswell may not have foreseen the almost wholesale transition from print to electronic in many library resource domains (and many libraries), his techniques may prove useful in making evidence based decisions on which volumes to keep, and which to send to the print repository or discard altogether.

Demand driven acquisitions (DDA) is essentially a digital version of the Regional ILL

Centers that Trueswell also proposed in his classic article. Trueswell’s (1969a) idea for the ILL center was to house the trivial many offsite, with a “built-in procedure that any item requested from the lesser-used area will ... enter the core collection. Thus, the core collection would continue to reflect user-circulation requirements regardless of the source of the items” (p. 461). DDA is quite similar in function, where a library adds a pool of electronic titles to its holdings and only pays for these titles as they are used by patrons. When an item from the pool triggers a purchase, it is added to the library’s permanent holdings.

While not the first to propose a systematic and mathematical approach to determine which library materials are useful, Trueswell was the first to introduce business and inventory concepts to the library literature and, further, to propose a method to determine what comprises a core library collection, based on use. Despite methodological limitations, Richard Trueswell therefore is a founding thinker and practitioner in evidence based practice in library collection development and management. Trueswell’s research, for better or worse, is still being cited in 2015, almost 40 years after he introduced his ideas to the library literature.

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