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ABSTRACT

A study of library shelving to determine the work load of personnel at an information center was undertaken in three separate time periods during 1975-76. A statistical technique was utilized to help in the determination of work performed. This information can be helpful to management in work allocation. Statistical tables are included. (Author/AP)

WORK ESTIMATE

AT AN INFORMATION CENTER

by

David Listowski

Introduction

Carol Salverson (1) points out that library statistics are compiled for a variety of reasons. One of the reasons is management decision-making. Statistics, when utilized correctly, can aid in the effective and efficient management of informational resources. The purpose of this study is to determine the amount of shelving work performed by personnel labeled as shelves at an information center. A statistical technique has been utilized to help in the determination of work performed. This information can be used by management in work allocation. No hypothesis testing will be attempted in this initial study.

The study of library shelving has been a neglected area in the past. Perhaps administrators and researchers have felt that the area is too trivial to study or that more important areas need to be studied first. However, it should be kept in mind that information, before it can be used, must first be located. Hence it has become important to study shelving in such places as the Upstate Medical Center Library. At Upstate, shelvers' work is comprised of shelving books, bound journals, and pamphlets. These items shelved reflect items used by library patrons (new books, bindery shipments, and re-cataloged items). Thus total work performed by shelvers consists of total patron use (circulation plus in-house) and in-process items.

A variety of research has been conducted on topics somewhat related to shelving in the past. These studies, although not directly applicable in every case, nevertheless provide some insight into our problem.

McGrath (2) feels that circulation figures can be used to predict the total useage of books. However, Upstate, unlike Southwestern Louisiana where McGrath's study took place, is a graduate oriented library with a considerable amount of in-house use by patrons. Hence it was felt that in-house use was sufficiently high to justify counts. On one hand, Fussler and Simon (3) maintain that books found on tables are underestimates of total use while Morse (4) contends that a table count is an adequate measure, particularly for libraries that discourage re-shelving by the user (which Upstate does by the use signs). Jain (5) claims that the dearth of in-house use arises because of the problem of patrons re-shelving items themselves. Upstate is an open-shelf library but the problem of patrons re-shelving items is really not a problem in ascertaining work performed by shelvers.

Method

Three separate studies were conducted. The first study ran from May 19, 1975 through September 30, 1975 and corresponded with the vacation break for students at Upstate Medical Center. The second study ran from October 1, 1975 through January 31, 1976 and corresponded with the fall semester. The third study ran from February 1, 1976 through May 18, 1976 and corresponded with the spring semester. In lieu of keeping a tally everyday which is considered bothersome by those who shelve, a random sample of days was taken to estimate the actual shelving performed. We wanted a sample size that was "reasonable" and a statement about the magnitude of possible sampling error. It was decided that the maximum acceptable error would be 0.4 of a standard deviation. It was arbitrarily decided that the 95 percent level of confidence was desired. The number of sample days, N, was calculated as follows:

$$N = (1.96 \times 2.5)^2 = 25$$

Thus 25 days were randomly selected from each of the three time periods.

For this study an items was considered used if it was off of its place on the shelf. Thus, items on tables, on chairs, on book trucks, and on floors were counted as used. Included in this definition were interlibrary loan items which were typically left next to a copying machine and had to be re-shelved like any other item. Excluded from the count were reserve items as they were handled by the Circulation Department. In addition, unbound journals were excluded as they were handled by the Serials Department.

It was decided that intervals be built around our obtained sample means. We wanted to be able to say that 95 out of 100 such intervals constructed would include the unknown population mean. Thus the probability statements would look as follows:

$$\text{prob} (| M-u | \leq .4\sigma) = .95$$

Where,

M = obtained mean
u = true mean
σ = standard deviation

Results

Table 1 shows the totals and the means for each item separately. Table 2 shows the items shelved. Finally, Table 3 shows the confidence intervals constructed. The data in Table 2 is the most important because it contains the mean number of items shelved. It can be seen that, for this study, the shelvers had progressively more items to re-shelve from Period 1 (vacation break) through Period 3 (spring semester).

Table 1

Totals and Means Individually

Books	Total	Number	Mean
Period #1	2691	25	107.64
Period #2	2528	24	105.33
Period #3	3709	25	148.36
Bound Journals			
Period #1	5799	25	231.96
Period #2	6356	24	264.83
Period #3	9363	25	373.42
Reference			
Period #1	625	25	25.00
Period #2	536	24	22.33
Period #3	695	25	27.44

Table 2

Totals and Means Grouped

Items	Total	Number	Mean
Period #1	9115	25	364.60
Period #2	9420	24	392.50
Period #3	13767	25	550.68

Table 3

Books	
Period #1	$93.34 < \mu < 121.94$
Period #2	$89.50 < \mu < 122.08$
Period #3	$130.39 < \mu < 166.33$
Bound Journals	
Period #1	$203.16 < \mu < 260.76$
Period #2	$224.00 < \mu < 305.46$
Period #3	$333.76 < \mu < 415.08$
Reference	
Period #1	$19.92 < \mu < 30.08$
Period #2	$17.39 < \mu < 27.27$
Period #3	$23.39 < \mu < 32.29$

Conclusions

Prior to this study almost nothing was known about the work performed at Upstate Medical Center Library. This investigation resulted in the estimating of items shelved for three time periods at Upstate. Although 3 hypotheses were tested in this initial study, some interesting comparisons could perhaps be made between time periods in a followup study. Perhaps more workers should be shelving during Period 3 than Period 1.

Hopefully this study will aid management decisionmaking at Upstate. A further study might test hypotheses built upon the initial data acquired in this study. It is also conceivable that some other information center might adapt the strategy utilized in this study to aid them in gathering and amassing certain kinds of information.

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