
Workflow arrangements and their effect on discharge accuracy

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The distraction factor and discharge record error.

Every circulation librarian has dealt repeatedly with the problem of patrons claiming they have already returned a book that they have been billed for. Arbitrating such a dispute is dependent on the library staff's confidence in the accuracy of the discharge records. Many things can affect the error rate during the processing of returned materials: worker alertness, terminal wand misreads, workload, training, etc. In analyzing a fluctuation in error rate, Bizzell Memorial Library at the University of Oklahoma discovered the important role furniture arrangement can play in workflow.

Background

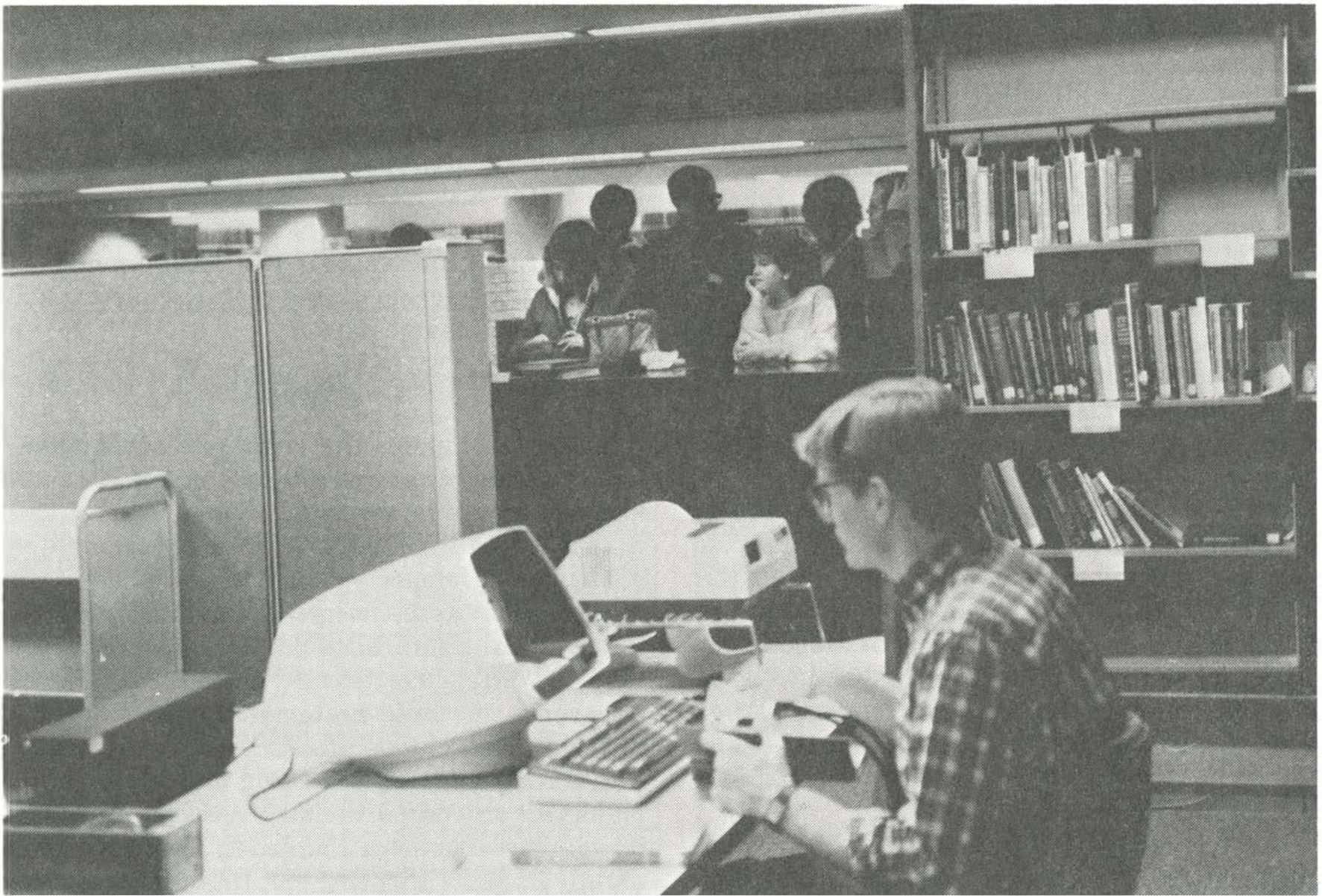
Bizzell Memorial Library circulation operations are automated on a DataPhase ALIS II system. Discharge is completed by wand in the OCR number of the book and responding to the screen prompts. Annual circulation is approximately 158,000. About three years ago, the circulation department incorporated monthly monitoring of the discharge error rate into their regular statistical procedures.

Originally, this was done as a quality control measure. Based on experiences in billing, we suspected that some problems were occurring in discharge which allowed more than a reasonable number of items to get back to the shelf without being cancelled. At that time, patron's claims about book return and the number of bills issued was the only resource of information about possible prob-

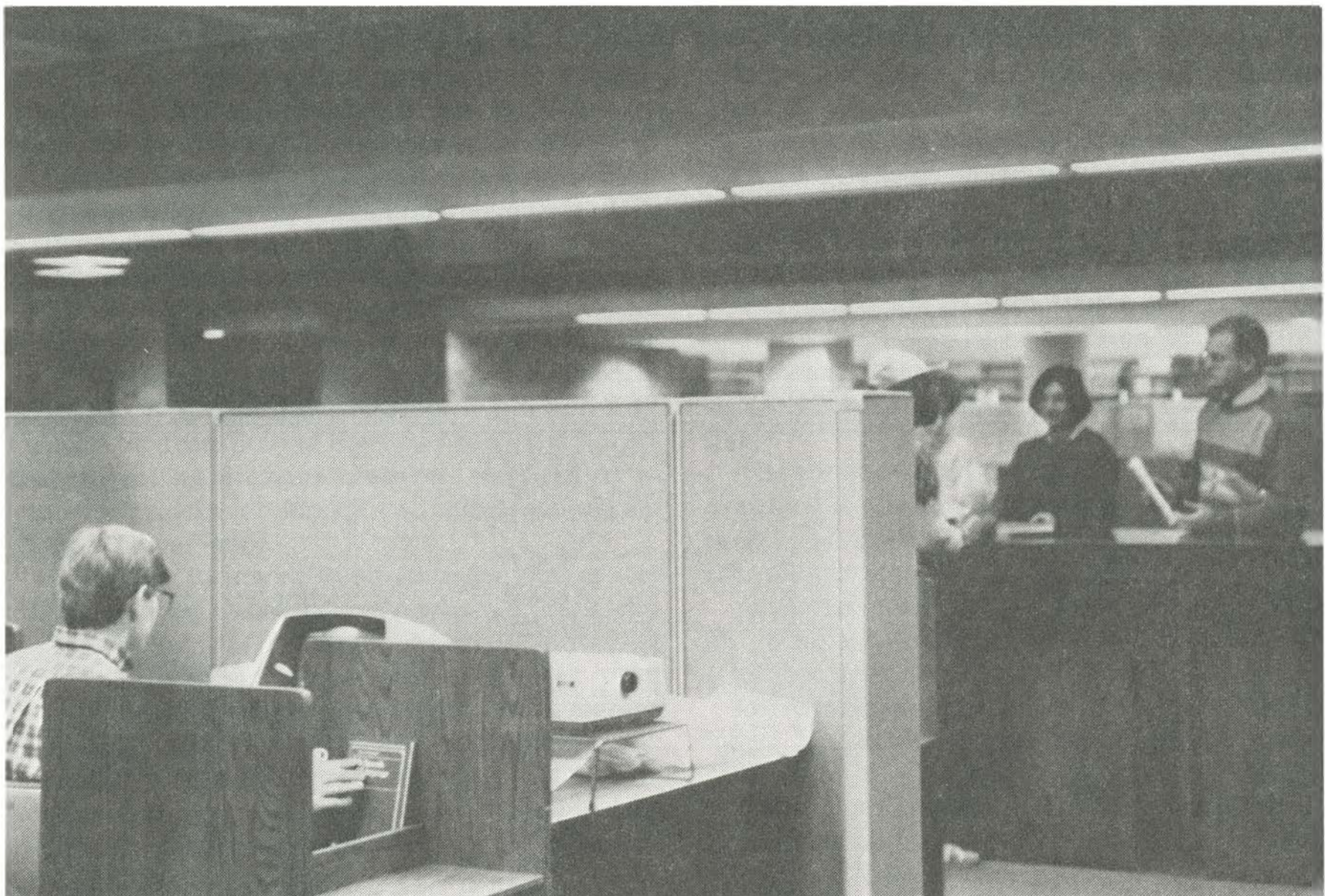
lems. The following is a description of the procedure which evolved over the course of a year and was designed to provide the additional needed information.

A sampling of approximately two hundred items are isolated from the sort area where discharge items are routed. Selection of these items is also at randomized times to ensure that the effects of different staff scheduling are also governed by chance. These items are then checked against the computer records to determine if discharge of each item has actually occurred. Those items that are found to be incompletely processed make up the percent error.

It was initially presumed that 100% accuracy was an admirable goal, but perhaps unrealistic. However, considering the nature of public relations and the effect discharge errors can have on a patron's opinion of the library's competency, a high standard was the goal. Therefore, a less than 1% error rate was designated as acceptable. It is important here to stop and think about the practical significance of a 1% error rate. If you cancel 200,000 items per year, for example, a 1% error rate will allow 2,000 items to be processed incorrectly. That could be a potential 2,000 patrons all with a jaded opinion of the library's ability to process materials accurately. Also, it means an associated time and effort must be spent searching the stacks for items claimed returned. So, in reality, even a 99% accuracy rate, which sounds very strin-



Before the change, the terminal operator was clearly visible to patrons waiting at the circulation desk.



After the move, the operator is screened from patrons queuing up for service.

gent, remains costly in terms of staff time and library reputation.

Brainstorming

Once we began regular monitoring of the error rate, fluctuations warned the billing staff to be aware of a problem month. For example, one month the error rate soared to 8%. It was theorized that a completely unprocessed booktruck was passed through to the sort room by accident. Since the monitoring discovered the problem, the billing staff had more confidence in arbitrating in favor of the patron who claimed to have returned books during this period, even if the items were not found in a search of the stacks.

As the monitoring progressed, it became obvious that our goal of a consistent error rate of less than 1% was not being reached. Repeatedly, staff was retrained to stamp and wand one-book-at-a-time instead of processing groups of books together to avoid mistakes. Also, procedure guidelines were posted on the discharge terminal. The circulation supervisor tested each student worker to ensure their method was appropriate. However, the fluctuations still continued.

After repeated review of the problem, a subcommittee of staff members brainstormed the problem. The committee theorized that the location of the discharge terminal could be contributing to the problem. At that time, the furniture arrangement placed the discharge terminal in view of patrons as they queued up to the desk for service. In that position, any impatient patron could usually get the attention of the terminal operator and force them to interrupt their processing and provide additional assistance. This usually meant that a small stack of books could be left unattended on the desk and even forgotten if the patron crush prevented the worker from returning to the discharge terminal before their shift ended.

Originally it was assumed that the operator's ability to provide back-up assistance was a valu-

able asset—hence the location of the terminal. After repeated examination of the entire process though, that advantage was deemed less important than discharge accuracy.

Due to the subcommittee's recommendation, the discharge terminal was shifted to a new location. In the new location the patron's view of the operator was completely blocked. This prevented patrons from interrupting the operator and allowed the workers to devote their complete attention to the discharge patron.

Conclusion

Table I compares the error rate for a three-month period before and after the terminal was relocated. As can be seen, the change in error rate from 1.8% to 1.0% in November, for example, is not a large difference. When it is multiplied by the number of books discharged in a month, however, the practical significance becomes obvious. Even the small differences detected represent a 357-book difference in those materials projected to go through the discharge process with some mistake. The consequent staff searching and patron complaints are also proportionately reduced. Although the number of items discharged in 1985/86 is down slightly from the previous year, the difference in error rates would still account for 332 more mistakes had the number of items processed been the same.

The arrangement of furniture is just part of an ergonomic approach to productivity. In this situation, it also appears to be an integral component of accuracy as well. Combining a quality control measure such as discharge error sampling with an analytic review of the procedures can result in practically significant improvements. This review proved that even basic arrangement of workstations should be included in analysis, as they may have a measurable impact on overall efficiency.

In the current climate of performance measurement and library quality measures, this analysis points to a definite need to include circulation

TABLE I
ERROR RATES BEFORE AND AFTER TERMINAL RELOCATION

Month	1984/85 % Error Rate		Books Discharged	=	Estimated Errors
Oct	1.6	×	8,408	=	134
Nov	1.8	×	11,008	=	198
Dec	1.9	×	17,726	=	337
					total 669
Month	1985/86 % Error Rate		Books Discharged	=	Estimated Errors
Oct	.6	×	7,823	=	48
Nov	1.0	×	10,688	=	107
Dec	1.0	×	15,650	=	157
					total 312

functions. The circulation desk of any library is a focal point of activity and may be the only contact some patrons have with library staff. As a result, their opinion about the services rendered at the circulation desk may dominate their overall assessment of the library's quality. Therefore, it is essen-

tial that circulation procedures are monitored both for quality and efficiency and that any set of performance measures which claims to assess library performance cannot be considered comprehensive without some measure of these services, which are intensively patron interactive. ■■

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A book is addressed to an audience that is very different from the audience to whom a thesis, dissertation, or other research report is addressed. These differences include level of interest, prior knowledge of the subject, and objectives in reading the work. Major revisions are usually necessary, even to the most effective works.

Revisions which are often required include deletions, reorganization, and the writing of additional material. Some examples:

- The style of a dissertation frequently requires the repetition of material from section to section.

In many cases this redundancy can be eliminated. Tables often should be deleted or converted into an explanatory narrative.

- Many of the fine points concerning prior research or methodology on the subject should be placed in appendices or footnotes.

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Olive Holmes, "Thesis to Book: What to Get Rid of," *Scholarly Publishing* 5 (July 1974):339-49; 6 (October 1974):40-50.

Olive Holmes, "Thesis to Book: What to Do with What Is Left," *Scholarly Publishing* 6 (January 1975):165-76.

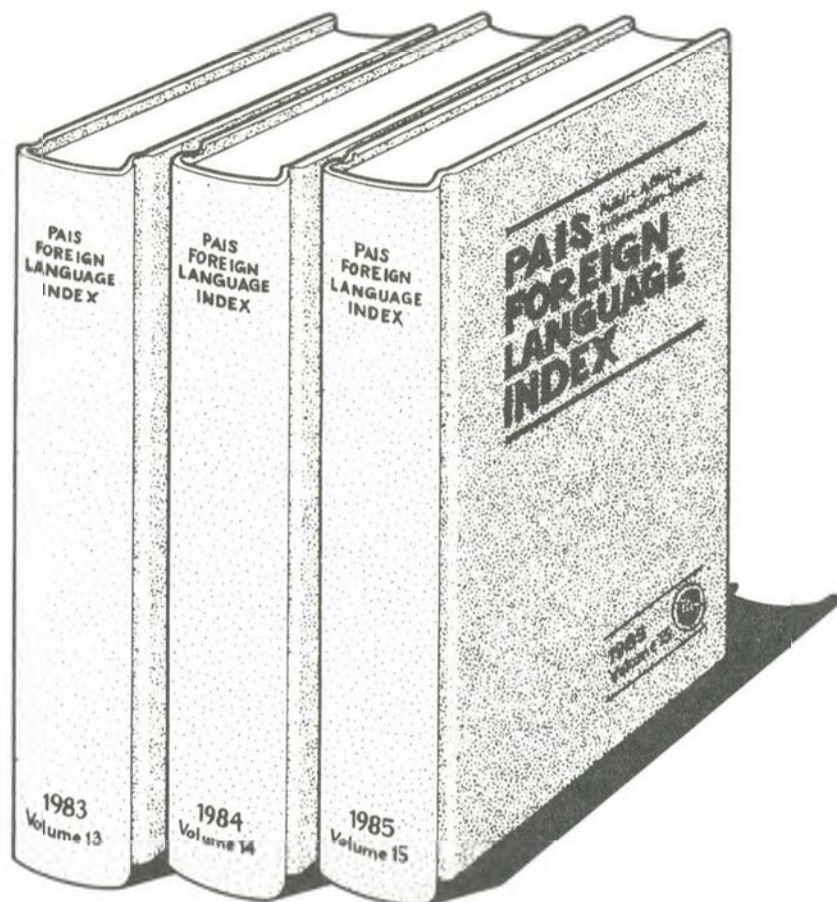
Constance Greaser, "Improving the Effectiveness of Research Writing," *Scholarly Publishing* 11 (October 1979):61-71.

Elsi M. Stainton, "A Bag for Authors," *Scholarly Publishing* 8 (July 1977):335-45. ■■

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