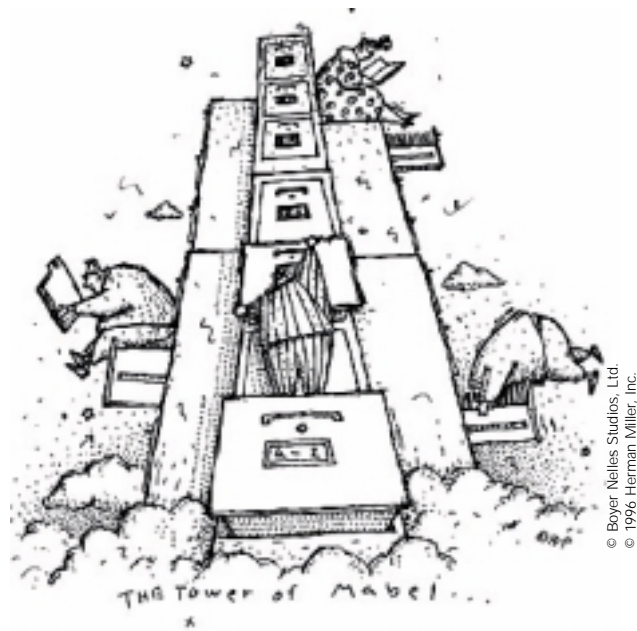


It's Here Somewhere

The Effect of Storage Methods on Job Performance



A recent study of people who work in open-plan office environments surfaced a direct correlation between satisfaction with workstation storage and self-rated job performance. The more satisfied people felt with their workstation's storage capacity and the appropriateness of its storage devices to their work tasks, the more satisfied they were with their performance on the job.¹

Of all the design variables tested in this study—partition type, number of panels, panel height, square footage, and storage—storage was the only one that correlated positively with job performance. Storage was one of two design variables (the other being number of panels) that had a significant correlation with job satisfaction.² What is behind these surprising findings?

“Storage” defined

Although the term “office storage” typically calls to mind rows of metal file cabinets, storage in today's workplace takes on a more varied and dynamic role in work support. In the study cited above, for example, satisfaction with storage was measured by questions that concerned not only storage capacity, but also the amount of space for vertical display and the appropriateness of storage devices to the job tasks and to the materials to be stored.³

In addition to filing, storage-related work activities include retrieving, organizing, displaying, staging, and storing materials, artifacts, supplies, equipment, tools, and information. Within the workplace, these activities take place on three distinct levels: archival, intermediate, and active.

Archival. This is high-density storage that is typically located outside the workstation. While archival storage also has to support organizing, retrieving, displaying, and staging of a variety of types of materials and information, these more dynamic activities are relatively infrequent. The primary function of archival storage is simply to contain bulk supplies or files that are infrequently accessed by a variety of people. Of the three levels of storage, this is probably the best understood and supported in the office.

Intermediate. Intermediate storage is archival storage on a smaller scale; the volume of material is smaller and the organizing, retrieving, displaying, and staging activities are more frequent, but not ongoing. Although intermediate storage may serve a small group or work team,



it is generally located within an individual office or workstation and is usually well supported by shelves, file cabinets and drawers, and overhead storage units.

Active. Personal, or active, storage happens at the workstation's center of activity. At this level, the displaying, organizing, retrieving, staging, and storing activities support the person's ongoing, primary job functions and can be almost indistinguishable from the work process itself. Active storage needs are the least well understood and supported in the office today, even though work-in-process support is increasingly essential to the effective performance of office tasks.

The primary work zone: patterns of use

Although there has been little research into support needs at the active storage level, a recent study offers some useful insights. In the course of observing 200 workstations and interviewing 24 occupants, the researcher detected a distinctive pattern in the way people arranged their desktops or primary work zones: a pattern that rarely varied with job description or office type or layout.⁴

In virtually every workstation observed, the primary work surface was largely devoted to storage of personal artifacts and frequently used tools and materials and to the staging of work in process rather than cleared area on which to perform tasks like reading, writing, or reviewing. People tended to impose this pattern on whatever office layout they were given—stacking essential references and staging work in process on top of computer monitors or appointment books or whatever else fell within their primary work zone.⁵

The study concluded that, although this “piling” method did not do a particularly good job of supporting work in process—essential documents were often disorganized and difficult to access—people reverted to this pattern consistently because it rendered the information they needed more visible and accessible than the organizational methods required by available storage devices (file cabinets, drawers, flipper door units).⁶

Other researchers and design professionals have observed this piling behavior in the office and have noted its drawbacks as a method of organization. One study determined that piles often serve as three-dimensional to-do lists—information visible on the tops of desks and tables is often there to remind the person to act on it.⁷ But the same study concluded that the more piles people have, the less likely it is

they will be able to locate a specific piece of information on demand.⁸ One time-management consultant estimates that executives spend an average of 30 minutes a day searching their desktop piles for essential papers.⁹

Several trends in the office workplace are contributing to the piling phenomenon—and making it crucial to provide better support for active storage in the primary work zone.

Office work is more project driven

As competitive pressures lead companies to adopt more flexible management structures with fewer levels of hierarchy and more cross-departmental collaboration,¹⁰ office work is becoming less sequential or process driven. Work is less likely to be passed assembly-line fashion from person to person or department to department. With people from several disciplines or departments working on a project simultaneously—and each person involved in several ongoing projects—paper-based information does not move neatly along a linear path. People need to keep greater quantities of active information in their offices and need to be able to organize that information by project.

Since people typically need to be able to put their hands on project-related information easily—they may be working on one project when they receive an urgent phone call regarding another project—it is considered active material and not something to be filed away for possible reference six months hence. People generally organize it in piles on any available horizontal surface, including the floor.

Office work is more multifunctional

As work becomes more team oriented and multidisciplinary, there is often less task differentiation among job categories. Senior managers are more likely to type their own memos on their own PCs. Administrative workers are more likely to be supporting several different people or project teams.

Office storage standards developed for managerial, administrative, and technical office jobs are virtually meaningless in organizations where everyone works with a computer and a telephone and uses similar forms and supplies. As job boundaries blur, work becomes less routine; and as jobs become less routine, the offices that support them tend to be covered with a greater number of piles.¹¹



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Greater tolerance for different working styles

There are more professionals and technicians working in offices than there were 20 years ago, and their numbers are expected to increase more rapidly than those of other job categories over the course of this decade.¹² These highly valued specialists—and the greater diversity of age, gender, and ethnic background in the work force in general—are forcing a growing tolerance for diversity both in working styles and in methods of organization. In knowledge-based industries that are especially dependent upon the creativity of “gold-collar” professionals, managers may not have a clear grasp of what their subordinates do,¹³ let alone how those professionals should organize themselves to do it.

The number of companies with clean-desk policies is likely to diminish as the emphasis shifts from linear tasks and procedures to projects and results.

Technology is changing paper use

In addition to proliferating the amount of paper in the office, computer technology is apparently changing the way paper is used in the office. As magnetic media begin to take over the function of information storage, paper is used primarily as a display medium.¹⁴

Since much of the actual processing of information takes place electronically on the computer rather than on paper documents that get passed from office to office, much of the paper coming into people’s offices today tends to stay there rather than proceed in an orderly fashion from “in” box to “out.” There are faxes and printouts and photocopies of reports, journal articles, and sales figures to be read and digested (and probably filed, although these hard-copy documents are typically outdated so quickly, they are rarely referred to again). An estimated 75 to 85 percent of all files are never opened once they have been placed in drawers.¹⁵ The purpose of these paper documents is to stimulate the person to read or review or think about or act on a particular subject. In order to serve that function, the documents have to be kept on display-visible and accessible, out in the open.

Computers also require some very specific work-in-process support of their own—electrical outlets, network cabling, keyboard trays, mouse pads, document holders—which can interfere with paper-based storage and organization methods. A computer placed in the center of the primary work surface can be a major roadblock to work flow; and, regardless of where it’s positioned, electronic technology and its

peripherals take up precious work surface space that might otherwise be used to support paper-related work in process.

Offices are getting smaller

Over the past decade, the average ratio of office space to office worker has dropped from 250 square feet to between 180 and 200 square feet.¹⁶ As office space standards continue to decrease in response to real estate costs and a tight economy—and as the proliferation of technological hardware takes up a greater percentage of the workstation space available—it becomes more difficult to provide the amount of horizontal space people need to support the piling method of active, personal storage.

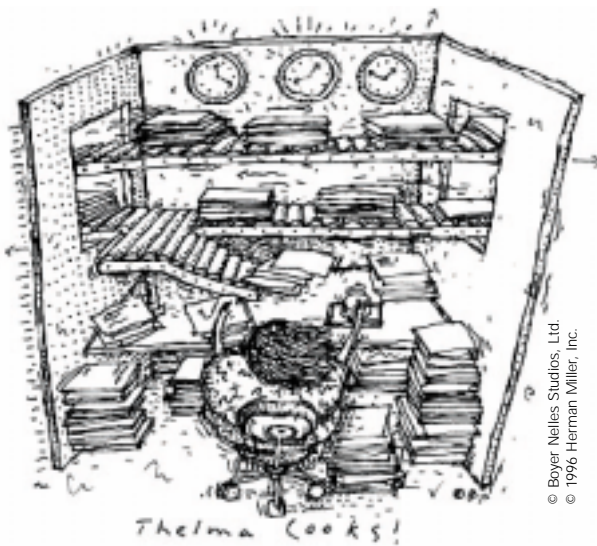
Office work is speeding up

In today’s competitive global market, companies do whatever they can to shorten their planning cycles in order to be more responsive to changing markets and to improve service to their customers. So, in addition to having more information to process, people are finding that they have more urgent information to process—and less time to file or otherwise organize it.

On the average, Americans are working 20 percent more each week than they were a decade ago, and the workload is expected to increase as leaner organizations and more powerful computer workstations result in more information and fewer people with less time to absorb it.¹⁷ Just keeping up with the flow of information in the workplace requires more of our time and attention every year,” writes Richard Wurman in his book, *Information Anxiety*.¹⁸ He notes that in addition to their “in” and “out” baskets, people now have “guilt” baskets, full of the reports, reprints, and periodicals they know they should read to keep up, but don’t have the time for.¹⁹

Office work is piling up

As companies reconfigure into work teams, more people need more information to effectively participate in decision making. As technology becomes cheaper and more powerful, the proliferation of information becomes easier and faster. And as work speeds up, people feel the need to have immediate visual access to urgent information. The end result of all these trends is that people increasingly organize their work in piles on work surfaces and floors rather than in files in drawers or on shelves.



Although there are no definitive studies on the subject, research does suggest some ways that offices might be designed to better support the active storage needs of today's knowledge workers.

Location, location, location

The consistent recurrence of a specific organizational pattern on the primary work surface²⁰ indicates that the location of active storage is of central importance. Work-in-process support that lies outside the primary work zone (essentially whatever people can reach while remaining seated, facing their primary work surface) simply won't get used—at least not for the purpose of active storage.

Relocation

To make more room for crucial work-in-process storage, most organizational experts' first recommendation is to get all archival storage and as much intermediate storage as possible out of the workstation. Back-up files, supplies, shared resource materials, and anything else that is not used on a daily basis can probably be organized and stored more efficiently in another location. Many companies are taking a new look at the science of records management and developing elaborate information systems that give employees access to archival material via computer technology.

Some experts in the field of organizational behavior and design advocate a general rethinking of the office that includes relocating much of the filing that is duplicated from workstation to workstation into shared libraries or resource centers.²¹ Work-in-process piles can often be whittled down considerably as well. Time-management consultant Jeffrey Mayer says that 60 to 80 percent of the papers he clears from his clients' desks can be filed in the wastebasket with no ill effect.²²

Display

If the primary function of paper today is display, it makes sense that people would want it out and visible, rather than hidden away in file drawers. Studies indicate that the spatial location of their piles is significant to people,²³ most of whom have some hard-to-articulate system of organizing their piles and a vague feeling about where specific documents are located. In one study, most subjects could recall where a document was located (when asked six months later) even if they recalled little else about it.²⁴

This suggests the benefits of active storage that allows people to display significant documents in an organized fashion. By exploiting memory for the visual and spatial attributes of documents, flexible organizational systems that allow people to recover documents by what they remember about them²⁵ could considerably cut down on the time people spend rifling through file drawers and desk-top piles.

Technology integration

A major factor in integrating paper- and computer-based activities is some flexibility in positioning the electronic equipment. Workstation designs that dictate computer placement with fixed corner work surfaces or limited access to electrical outlets and communications ports are bound to create conflicts between paper and electronic work in process.

Depending upon how much time they spend at their computers and what drives the computer activity (paper documents, telephone, thought, or another computer), people may want their computers at the center of their primary work zone, off to the side, or on a secondary work surface—or they may want to be able to push them out of the way when not being used. In any event, an additional 12 to 15 inches of work surface space next to the monitor is usually required for paper used at the computer.²⁶

Control

Most people who work in offices—77 percent in a recent study—say that “freedom to decide how they do their own work” is “very important.” The percentage is even higher among professional and technical workers.²⁷ In another survey, over half the people questioned said that they had sometimes wanted to rearrange things in their workspace; but most said they had never attempted to do so, either because they thought that it would be too difficult or that they would need permission to do so.²⁸

Since storage is the most frequently reconfigured workstation component,²⁹ and since workers believe that storage affects their satisfaction and performance on the job,³⁰ it would seem that providing people with work-in-process support that they can locate and arrange to meet their own personal storage needs could have significant payoffs in work productivity and satisfaction.

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