

## AGING WORKER PERCEPTIONS ABOUT DESIGN AND PRIVACY NEEDS FOR WORK

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*This study examines the compatibility of office design for today's aging workforce in the United States. Research to date has not examined the impact of workplace design on aging workers, nor has it examined cohort perceptions about workplace design. A cohort comparison was conducted utilizing an ethnographic method. The study identifies design characteristics perceived as facilitating and impeding work. Tentative findings indicate that age diversity in the American workforce does not appear to influence the overall types of design items and attributes and privacy features perceived to impact work. Both older and younger workers appear to perceive similar design features as facilitating and impeding work. Pending further research, structural changes to the office may not be necessary to accommodate older workers. This can potentially prove cost effective to organizations as they strive to support workforce diversity and to manage change. Findings also indicate that privacy is a primary concern of older and younger workers that should not be overlooked when addressing the needs of an organization and its employees. The theoretical considerations presented in the present study, though in their formative stage, offer a beginning insight into aging worker perceptions about workplace design as well as how perceptions of younger workers compare to older workers'.*

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## INTRODUCTION

The present study examines attributes of the physical environment that accommodate age diversity in the American workforce. Research to date has not examined the impact of workplace design on aging workers, nor has it examined cohort perceptions about workplace design. The increasing diversity in the American workforce coupled with changes in global markets, information technology, organizational structure, and work modes are creating new demands for workplace designs that support new ways of working. The new office design “must empower individuals and teams to make changes, enable them to do it, and swiftly, and be forgiving of mistakes” (Brill, 1993:33). The increasing age diversity in the workplace is a striking change in the American labor force. Demographic studies project that the aging population will play a significant role in the diversity of the American workforce (AARP, 1996; Brill, 1993; Hopkins, *et al.*, 1991). American workers over the age of 55 may exceed the number of new entrants in the workplace within the next decade (Dychtwald and Flower, 1990). The research question for the present study asks: What office design features do older and younger workers perceive as facilitating and as impeding work?

## THE AGING WORKFORCE

The American Association of Retired Persons (AARP) projects that the most rapid increase in population growth will occur between the years 2010 and 2030 when the “baby boom” generation reaches age 65 (1996). The median age of the workforce was approximately 35 years in 1980, 37 years in 1990, and is projected to be approximately 41 years in 2005 (Brill, 1993; see also Hopkins, *et al.*, 1991). Not only are demographics projecting age diversity in the workforce, but traditional notions of retirement at age 65 are being replaced by a trend toward longer periods of employment. The percentage of older adults as new hires or re-hires is still low; however, this is a trend to watch as baby boomers reach retirement age. Inflation, increasing health costs and inadequate pensions are forcing older adults to remain in or re-enter the workforce past the traditional retirement age (Doering, 1990; Hertz, 1995). The desire to be productive through work is another motive for older adults remaining in and/or returning to work (Hale, 1991).

Organizations have raised concerns about the physiological decline of the aging workforce for some time (Ashcraft, 1992; Fox, 1951; Robinson, 1983; Welford, 1976). While laboratory studies indicate some decline in cognitive functions (e.g., cognition, cognitive speed, decision-making, memory, sensory factors, and perceptual-motion), negative effects of this decline appear to be absent from job performance (Salthouse, 1982). Salthouse theorizes that this may be because of the minimal demand level of most on-the-job activities when compared to laboratory tests, and work and life experiences gained from increasing age. For example, Machado and Smith (1996) investigated the impact of certain variables on productivity of work teams (i.e., service order completion) for service technicians at Bell South. Findings determined that the teams at the top ten percent in productivity were older, had much more time on the present job, and much more service with the company than teams at the bottom ten percent in productivity. Research also indicates that productivity can decline with age where specific job-tasks or occupations relate to the degree and type of physical effort, such as reaction time and speed of performance (Ashcraft, 1992; Robinson, *et al.*, 1985; Sheppard, 1976).

Robinson, Coberly, and Paul (1985) reviewed a number of studies on occupational performance with age, concluding that “environmental conditions are important in mitigating the effects of decline in aging workers” (p. 519). Environmental conditions provide the physical context of workplace design through barriers and field characteristics. Zeisel (1984) describes barriers as the physical elements that keep people apart or join them together, physically and symbolically, through walls, screens, objects, and partitions. He describes field characteristics as the physical elements that perceptually alter the physical context through shape, size, orientation, lighting, acoustics, and air quality. Ashcraft (1992) proposes that structural changes in workplace design may need to be made to support the physiological decline that occurs for older workers. While this seems intuitively valid, the impact of design barriers and field characteristics on aging worker performance has not been empirically

examined. With the increasing workforce diversity, how to accommodate office design needs to facilitate job performance for both older and younger workers also warrants empirical examination.

## RESEARCH METHODS

Twenty-four administrators participated in the study: twelve older persons and twelve baby boomers. All twenty-four administrators are actively involved in their work within the same geographic area. The older persons work for nonprofit service organizations and the baby boomers work for profit and nonprofit service organizations. Work responsibilities and tasks are similar between groups. The twelve older administrators consisted of two persons, 60-62 years, and ten persons within the age range of 64-78 years. The twelve baby boomers consisted of four persons, 50-53 years, and eight persons within the age range of 38-45 years. The present study did not include ages 50-59 in the sample of older persons as the investigator believed that the sample cohort comparison of office design needs would probably be more pronounced by sampling higher age groups, especially in the cohort of 64+ years. (This is due to the physiological changes that occur with increasing age.)

Heuristic elicitation was utilized to interview the 24 administrators. The Heuristic Elicitation Methodology (HEM) is designed to analyze complex issues by exhausting the range of respondent perceptions concerning the variables being examined, to determine beliefs associated with the issues, and to identify interrelationships among the issues. As a cognitive ethnographic method, the basic assumption of the HEM is that it is possible to match particular items and attributes with particular cultural values (Harding and Livesay, 1984). HEM procedures help to establish authenticity through the nature and format of the questions asked, followed by content analysis techniques (see Denzin, 1978; Denzin and Lincoln, 1994; Goetz and LeCompte, 1984). HEM stimulus materials are respondent-generated and data respondent-categorized rather than investigator-generated and investigator-categorized. This preserves the language and conceptualizations of respondents and decreases the likelihood of overlooking significant attributes of a domain being examined (Spradley, 1979, 1980).

Structured interviews were conducted with each administrator over a 30-90 minute period. Lawton stresses that the "interview is the best all-purpose method" in collecting cognitive data from older persons (1990:354).<sup>1</sup> The structured interview is the first phase of the HEM, called the Domain Definition. The Domain Definition is an open-ended interview in which the language of the respondent is used in a series of interlinked questions, with answers recorded verbatim. Using the respondent's own language in the questions helps to establish a shared meaning of language. The HEM consists of several elicitation phases; however, any elicitation phase can be used individually and stand alone as a separate investigation (Harding, 1974). The methodology is predicated upon the idea that "language provides a powerful entry to cultural meaning structures" (Harding and Livesay, 1984:75).

The Domain Definition identifies domains through semantic relationships in terms of behavior, artifacts and knowledge that people have learned or created. A "domain" is a set of categories organized on the basis of a single semantic relationship (e.g., "X" is a kind of "Y"; "X" is a way to do "Y"). The research instrument for the present study was designed to elicit information primarily about physical features followed by psycho-social features, perceived as facilitating and impeding work. The 14 questions asked avoided "referential meaning" by asking for "use" through contrast, similarity, uniqueness and the ideal in an effort to exhaust a domain (Spradley, 1979, 1980). The following questions illustrate the nature and format of questions used in the present study:

- Q. What are the different kinds of things that you do, or try to do, or try to get done in your office? [Answers = "X"]
- Q. For/when "X," what conditions, or office features, or situations make it *easier* to conduct "X"? [Answers = "Y"] PROBE: What else might make it easier to conduct "X" other than "Y"?

- Q. What conditions, or office features, or situations make it *harder* to conduct “X”?
- Q. What kinds of things are important for you to be able to have in your personal office work area? [Answers = “X”] PROBE: When, at what times, or in what situations is having “X” important to you? [Answers = “Y”] PROBE: When else, other than “Y,” would “X” be important for you to have in your personal office work area?

The investigator conducted a domain analysis utilizing content analysis procedures (Spradley, 1979). This involves sorting through interview responses and identifying patterns, categories, or themes. A worksheet was developed that displayed semantic relationships. Possible cover terms and included terms that appropriately fit the semantic relationships were searched for in the data. Making systematic use of this kind of worksheet helps to uncover domains embedded in the interview responses (Spradley, 1979). Each physical item, attribute and psycho-social feature, perceived to facilitate or impede work, was represented in some domain category. Key participants reviewed the domain categories for accuracy and gave positive feedback (Creswell, 1994; Merriam, 1988). Following the domain analysis, cumulative frequencies for similar types of items, attributes and psycho-social features were calculated to determine how often similar types were elicited. Content analysis procedures, typically, do not compute frequency counts for included terms in a domain category; however, quantifying them allowed the investigator to determine included terms elicited most frequently by respondents and to gain a beginning understanding about the distribution of beliefs between cohorts. A system of cultural meanings that older and younger workers use to denote and connote physical and some psycho-social features of the workplace was uncovered.

## FINDINGS

### *Physical Items and Attributes*

Older and younger workers do not appear to differ in their perceptions about types of physical features that impact work. Elicited responses by older and younger workers indicate that similar types of items and attributes are perceived to facilitate work:

*[my office] would have up-to-date technology, meaning computer, printer, a good phone system; would have a window; adequate lighting; the computer is vital, I can't imagine doing the job without it; filing space is important, and I've added a larger filing cabinet to my space; books, always books — I keep a supply of reference books; larger desk with more drawers; plenty of office space, four walls and a door; a facility [that's] planned well for groups; being close to the people I work with, personal interaction with coworkers is very important.*

[verbatim responses by older workers]

*[having] a computer, printer, etc.; computer support; have windows — I can see windows through other spaces, so I can get some environmental clues even though it is an interior office; good lighting; have enough space for all of the office equipment; a place with and for reference materials; have an area set aside just for storage; big desk to spread things around; larger work area, easy access to other cubes for team effort; [being] close to my coworkers, so if I need anything, it is easy to locate different personnel; a separate workspace for meetings and interviews that is quiet and multifunctional.*

[verbatim responses by younger workers]

Elicited responses by older and younger workers also indicate that similar types of items and attributes are perceived to impede work:

*my office is too small, office furniture is not adequate; the lack of storage space that makes for a messy appearing office environment; not having the equipment and everything we need to work with; no windows.*

[verbatim responses by older workers]

*[having] the typical Dilbert cube; multiple people being in one office, [my space is] too small, can't fit everything I need to work with, some stuff is stored elsewhere; too small, not made for us, used to be an old lab, so we don't fit; not enough work office, not enough room for storage, full of office equipment, no windows, etc.*  
[verbatim responses by younger workers]

Table 1 compares response frequencies for similar types of physical items and attributes perceived to impact work. Cumulative response frequencies for items and attributes elicited less than five times are not included in the table. Physical features mentioned most frequently by both groups as facilitating work are up-to-date information technology, large enough workspace, close proximity to conference rooms, equipment, reference materials and supplies, windows, adequate work surface, and being near co-workers. Kupritz (in press) identified similar features as facilitating work for younger to middle-age workers with administrative/technical duties, in particular, having adequate work surface, adequate storage, easy access to reference materials, and close proximity to work groups. Lack of office space, lack of storage space, and lack of windows, as well as inadequate furniture and equipment appear to impede work for both older and younger workers. The physical feature mentioned most frequently by both groups as impeding work was the individual workspace being too small. As simple frequencies tabulating nominal level data, no inferences can be made at this time about the strength of association or the relative weighting of importance for these elicited items and attributes. Another research instrument designed specifically to address these issues is needed so that inferences can be made based upon more powerful statistics. This is discussed in the implication section.

Ethnographic data and analysis, however, help to explain at least partially the relevancy of certain physical features to a group's particular situation and could impact some of the extreme frequencies observed between groups in Table 1. During the interviews, many of the older workers expressed the need for more reference materials in their current work spaces, whereas younger workers, for the most part, did not express this need. Inadequate storage was a major concern of younger workers in their current office situation, whereas older workers did not express this concern as often. Finally, many of the older workers occupy cubicles in an open-plan office they perceive as being crowded and small; younger workers, on the other hand, mainly occupy individual private offices that appear to accommodate most of their tasks.

### ***Privacy Issues in the Workplace***

Salient psycho-social features perceived by older and younger workers as facilitating or impeding work also were elicited during the interviews. Psycho-social features elicited most frequently by the workers relate to privacy issues. Responses by older and younger workers indicate that similar types of privacy features are perceived to facilitate work:

*more need for concentration time with lack of interruptions; four walls and a door; no more than one door, so that interruptions can be kept to a minimum; avoid interruption; a secretary who takes our calls; avoid outside noise; silence; my family pictures, every time I get frustrated I can look at them, it's a warm fuzzy; individual office with privacy, with space I have control; [personal workspace] big enough to meet with as many as four to six people comfortably, in private; walls to the ceiling; always avoid partial walls.*  
[verbatim responses by older workers]

*being able to concentrate; I get distracted easily, I need to be isolated; my office is away from traffic, it is secluded; being able to close the door; not being bothered by the phone and the public; no distractions; no walk-in traffic; room to individualize [with] pictures on the wall when you need to spend a lot of time in there; close proximity to work area and conference rooms for meetings [to have] more privacy for support staff; full walls; no cubicles.*  
[verbatim responses by younger workers]

TABLE 1. Cohort comparison of salient physical features facilitating and impeding work.

Domain Category	Physical Features (items and attributes)	YW <i>f</i>	OW <i>f</i>
Features <i>facilitating</i> work in personal office work area	up-to-date information technology (computer equip. and phone lines)	17	25
	large enough workspace	16	15
	windows	8	14
	adequate work surface	12	8
	adequate reference materials and supplies	4	14
	flexible workspace (furniture and equip./layout)	8	8
	adequate storage	8	8
	adequate lighting	6	5
	door	8	5
	floor-to-ceiling solid walls	3	6
Features <i>facilitating</i> work in more general office surroundings	access to computer equipment, other office equipment, reference materials, and supplies	0	5
	open space with cubicles, 5'H	5	0
	close proximity to conference rooms, computer equipment, other office equipment, reference materials, and supplies	13	17
	coworkers near each other (i.e., related by work)	9	11
	near people supervised	5	0
Features <i>impeding</i> work in personal office work area	work space too small (crowded conditions)	13	9
	inadequate storage	10	2
	no windows	4	3
	inadequate lighting	5	0
	inadequate furniture and equipment	3	2
Features <i>impeding</i> work in more general office surroundings	general office surroundings too small	2	10

YW = younger workers, OW = older workers.

Responses by older and younger workers also indicate that similar types of privacy features are perceived to impede work:

*distracting noise; the level of noise; voices of surrounding coworkers; being interrupted; interruptions by flow of traffic; having an open door policy; too many walk-ins; if wanted to concentrate, have to work hard to get away from distractions; probably the general crowding; lack of privacy and crowding; hard to talk confidentially.*

[verbatim responses by older workers]

*noisy [office] because it is in the main traffic area; noise level that interferes; ringing telephone; being interrupted by other people; too convenient for people who want to kill time to stop by and kill time; cramped; the sense of being closed in and that you couldn't swing a cat in one office; some of the nature of the work we do should be confidential — it is tough with cubicles — and we have no formal conference area for meetings.*

[verbatim responses by younger workers]

Table 2 compares response frequencies for privacy features perceived to impact work. Cumulative response frequencies that elicited less than five items are not included in the table. Privacy features mentioned most frequently by both groups as facilitating work are being able to concentrate, silence, and being isolated. Privacy features mentioned most frequently by both groups as impeding work are acoustical distractions and interruptions. As stated earlier, some of the extreme frequencies observed between groups may be due to a privacy feature's relevancy to one group's situation; no inferences can be made beyond this at this time.

TABLE 2. Cohort comparison of salient psycho-social features facilitating and impeding work.

Domain Category	Psycho-social features (privacy terms)	YW <i>f</i>	OW <i>f</i>
Privacy features <i>facilitating</i> work	being able to concentrate, silence, being isolated	15	10
	having a door	8	5
	avoiding interruptions	9	3
	avoiding acoustical distractions	7	4
	personalizing space and control over space	5	6
	having a conference space for confidential meetings (in personal office work area or a room as part of more general office surroundings)	5	5
	floor-to-ceiling solid walls for personal office work area	3	6
	open space with cubicles, 5'H	5	0
Privacy features <i>impeding</i> work	acoustical distractions	13	16
	interruptions	15	9
	lack of privacy, including concentration problems	1	12
	crowding (in personal office work area and general office surroundings)	1	7
	lack of confidential spaces for meetings (in personal office work area and conference rooms)	4	3

YW = younger workers, OW = older workers.

Uses of the term “privacy” in work environments generally reflect the regulation of interaction, which encompasses retreat from incoming stimulation (generated by people and environmental stimuli) and information management, that is, outgoing information (Sundstrom, 1986). The particular privacy features perceived as facilitating and impeding work in the present study are common meanings found in the privacy literature on work environments (Justa and Golan, 1977; Kupritz, 1998; Oldham, 1988; O’Neill, 1994; Sundstrom, *et al.*, 1982; Zalesny and Farace, 1987). Being able to concentrate, being isolated, avoiding interruptions, and avoiding acoustical distractions are examples of regulating incoming stimulation for privacy. Having an individual office with control over the space and room to personalize an office (e.g., with pictures on the wall) are examples of the need to control and to personalize one’s space. Altman (1975) theorizes that this need serves the main function of privacy, which is to help maintain a person’s self-identity. Physical features such as having a door, conference space(s) for confidential meetings — either in one’s own office or close proximity — and floor-to-ceiling solid walls represent barriers used to regulate incoming stimulation and outgoing information for privacy. Privacy features perceived as impeding work are indicative of the common complaints about privacy found in the literature (Justa and Golan, 1977; Kupritz, 1998).

Altman (1975) proposes that the most basic privacy need is to optimize social contact (with both incoming stimulation and outgoing information) and to avoid crowding. Findings from Sundstrom, Town, *et al.* (1982) suggest that the next need may concern mental concentration and the avoidance of distraction, interruption, and noise. Where neither crowding nor concentration poses problems, autonomy and conversational privacy may become salient as the third need.

## IMPLICATIONS

The theoretical considerations presented in the study, though still in their formative stage, provide a beginning knowledge base about office design features perceived by older and younger workers to impact work. The present study indicates that age diversity in the American workforce does not appear to influence the overall types of design items, attributes, and privacy features perceived to impact work. Older and younger workers perceive similar types of office features as impacting work, even with the physiological changes occurring in aging workers. Pending further research, structural changes to the office may not be necessary to accommodate older workers. This can potentially prove cost effective to organizations as they strive to support workforce diversity and to manage change.

For most American companies, facility-related expenses (i.e., real estate and equipment) represent the second largest organizational asset at about 25% of operating costs, topped only by personnel operating costs at about 38% (Haworth, 1985; Becker and Steele, 1995). The study also indicates that privacy is a primary concern of older and younger workers that should not be overlooked when addressing the needs of an organization and its employees. A body of literature exists documenting the pitfalls organizations face when they make design alterations to increase communication without taking privacy needs into account. The open-plan with cubicles, primarily intended to increase communication, often has had the opposite effect because of privacy problems. Privacy research during the 1970s to 1990s reveals that the inability to hold confidential conversations, lack of control over accessibility, the inability to avoid crowding, lack of autonomy over supervision, and distractions and interruptions can contribute to negative effects on job performance and satisfaction (Sundstrom, *et al.*, 1980).

The detail gained about cohort perceptions in this initial study warrants a larger study that measures the strength of item and attribute relationships and the relative importance given to office features by cohorts. This raises several questions: What is the strength of association between office design features and job activities performed? What weighting of importance do cohorts give to design items and attributes and privacy features perceived to facilitate work? The answers to these questions, along with the present findings, can help organizations make informed decisions about the appropriateness of the work environment for older and younger workers as they practice new ways of working on-the-job. In a broader context, the present findings validate the physical environment as an enabler of work processes. Providing a supportive physical environment is an "opportunity to manifest support for the organization's purpose and learning" (Dutton, 1994:469).

#### NOTE

1. Lawton (1990), however, cautions that the interview is less effective with the deaf, the speech-impaired, and persons not fluent in English (especially the cognitively impaired).

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