

## INSTRUMENTALITY, AESTHETICS, AND SYMBOLISM OF OFFICE DESIGN

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**ABSTRACT:** This article suggests that the analysis of physical environments in organizations should recognize three separate dimensions: instrumentality, aesthetics, and symbolism. A theoretical framework is presented based on an expansive survey of multiple bodies of literature that study the effects of physical environments of organizations. Two different methodologies are employed to study employee perceptions of the physical environment of their office space and to test and support the three-dimension framework. In a qualitative study, narratives of in-depth interviews relating to office design are evaluated. In a quantitative study, data collected in a

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survey of 148 office employees provide evidence for the construct validity of three separate dimensions. The three-dimension model described and validated in this study may facilitate the planning and evaluation of office design.

**Keywords:** *instrumentality; aesthetics; symbolism; office design*

**Research confirms that the configuration** of office space affects employee feeling and behavior (Baker, 1998; Barclay & York, 2001; Gaedeke, 1994; Leaman, 1993; Leather, Pyrgas, Beale, & Lawrence, 1998; Marans & Spreckelmeyer, 1982; Morrow & McElroy, 1981; Parker, 1994; Sommer, 2002; Stone & English, 1998; Wah, 1998). Research also argues that office space should be designed according to these feelings and employees' needs (Thiel, 1997). As stated by Davis (1984), a key advantage of physical variables is that they are observable and, thus, manageable. A key question is what is it about a work environment that influences employees? Some researchers consider the instrumental influences on performance of tasks (Baldry, 1997; Becker, 1981; Carnevale, 1992; Parker, 1994). Others focus on perceptions of the work environment rather than objective features or facilitation of task performance (Hummel, 1983; Oldham, Cummings, & Zhou, 1995). Management researchers typically consider the symbolism of office environments (Gagliardi, 1992; Hatch, 1997; Rafaeli & Pratt, 2005; Schein, 1990; Sutton & Rafaeli, 1987; Trice & Beyer, 1993; Yanow, 1998), presuming that subjective interpretations rather than objective attributes affect task performance (Ornstein, 1986; Sundstrom, Herbert, & Brown, 1982).

Some studies of the physical environment within organizations identify relevant aspects or dimensions (Baldry, 1997; Becker, 1991; Carnevale & Rios, 1995; Davis, 1984; Oldham et al., 1995; Sommer, 2002). Sommer (1969, 2002), for example, studied issues such as personal space, seating arrangement, and privacy. The majority of available studies, however, categorize physical organizational environments into discrete categories, presuming that categorization determines the effects of the work environment. When the environment (e.g., an office) is viewed as instrumental, it is presumed to affect task performance (e.g., is it large enough?). Yet the same environment may also have other implications (e.g., is it aesthetically appealing? Does it symbolize power?). Only a few analyses explicitly argue that it may be inaccurate and misleading to classify organizational artifacts as instrumental or aesthetic (Frost & Morgan, 1983; Sommer, 1969; Strati, 1992) or to classify them as only functional or meaningful (Gibson, 1979; Heft, 1997). Sommer (1969), for example, claims that designers of offices

tend to emphasize aesthetic requirements and ignore the needs of employees who function in these offices.

The following literature review integrates an expansive body of knowledge regarding the impact of the work environment on the employee (Canter, 1997; Fowler, 1995; Gifford, Hine, Muller-Clemm, Reynolds, & Shaw, 2000; Goodrich, 1982; Hershberger & Cass, 1988; Lang, 1988; Markus, 1987; Rafaeli & Pratt, 2005) and suggests that office design should be considered along three concurrent and independent dimensions: instrumentality, aesthetics, and symbolism. After describing the three dimensions (Rafaeli & Vilnai-Yavetz, 2004a, 2004b), we test and validate them in the context of office design.

Instrumentality, or the effects on related tasks and goals, is one dimension of office design. Instrumentality is suggested in analyses of usability and human factors engineering (Garling & Golledge, 1989; Nielsen, 1994) and evaluations of physical places according to goal attainment (Canter, 1997; Howell, 1994). This dimension is similar to Gibson's (1979) concept of affordance, because physical artifacts can support or hamper desired activities.

Aesthetics is the second dimension. Aesthetics is suggested by research and practice of space and environmental design (Lang, 1988; Nasar, 1997) and environmental psychology (Bateson, 1995; Nasar, 1994). Dean, Ramirez, and Ottensmeyer (1997), Gagliardi (1992), and Strati (1992) argue for the importance of the aesthetic experience of organizations. A set of studies documented, for example, that beautiful rooms (as opposed to ugly rooms) have a significantly different impact on people's perceptions and emotions for both short and long terms (Maslow & Mintz, 1972; Mintz, 1972). Aesthetics is claimed to be independent of instrumentality (Berleant, 1988), although it cannot be dissociated from organizational goals (Strati, 1992). To illustrate, a black leather chair may be aesthetically pleasing in a senior manager's office but unaesthetic in a flower shop. Yet the aesthetics of the black leather chair is separate from its instrumentality: a black leather chair could be equally functional in a senior manager's office and in a flower shop.

Symbolism is the third dimension of office space. It refers to associations elicited by the space and has been the main issue considered by organizational researchers (Dandridge, Mitroff, & Joyce, 1980; Gagliardi, 1992; Hatch, 1997; Pondy, Frost, Morgan, & Dandridge, 1983; Schein, 1990; Trice & Beyer, 1993). Ecological psychology scholars have developed the concept of meaning of built environments. Heft (1997), for example, in an analysis of Gibson's (1979) ecological approach, identified meaning of the built

environment as “a quality that transcends and is imposed on the natural order” (p. 84). Gibson had indeed argued that cultural values and meanings separate types of affordances from each other. Yet as highlighted by Heft, such symbolism is not integral to attributes of an environment but rather reflects a process of interpretation and intellectualization of an environmental experience.

Symbolism thus presumes people as observers and interpreters of the physical environment rather than only active participants in this environment (Heft, 1997). Csikszentmihalyi and Rochberg-Halton (1981) illustrated that even simple or mundane objects, such as chairs and tables, have symbolic meanings. Symbolism is also conceptually separate from aesthetics and instrumentality. A chair that may be functional or dysfunctional and aesthetic or unaesthetic may or may not symbolize power or prestige, depending on the associations it triggers (Rafaeli & Worline, 2000).

The idea of three dimensions of the physical structures of work environments is supported by ancient and classic foundations of architecture (Vitruvius, 1934, 1960). The Roman architect Vitruvius (1960, p. 17), whose work is considered to be a building block of architectural conceptualization, noted that building design must offer firmness, commodity and delight. Firmness (sometimes labeled *durability*) connotes a good structure that supports a building under all conditions, whereas commodity, or convenience, is what makes a building comfortable (correct size, a heating system that works, etc.). Thus, firmness and commodity (or durability and convenience) together compose what we have termed *instrumentality*. Moreover, according to Vitruvius (1960), it is delight or beauty that makes a building more than just a shelter. It may be an intellectual delight, a visual delight, or other form of delight, but it brings something more to the building than just functionality. Here, we can find similarity to the aesthetic and symbolism dimensions identified by Rafaeli and Vilnai-Yavetz (2004a, 2004b). We acknowledge the likelihood that our separation of what Vitruvius (1934) labeled *delight* into aesthetics and symbolism impinges on the larger question of context. Office design is a case in which, as Thiel (1997) notes, there are important contextual considerations of time, space, and user.

Rafaeli and Vilnai-Yavetz (2004a, 2004b) identified the three dimensions—instrumentality, aesthetics, and symbolism—as integral to perceptions of public transportation vehicles. Their study illustrates that a full understanding of the range of reactions to these vehicles requires recognition of the three separate and concurrent dimensions. This is similar to Thiel’s (1997) idea of *envirotecture*, in that the knowledge of all elements of a physical environment contributes to a fuller understanding of user needs and thus to a greater social significance and a better design of the built environment as

a whole. The present study tests the model advanced by Rafaeli and Vilnai-Yavetz (2004a, 2004b) with respect to office design by using a combination of qualitative and quantitative methods. First, the three dimensions are shown to be present in narratives regarding office design. Then, the three dimensions are shown to emerge as factors underlying employees' responses to a structured survey of perceptions of the work environment.

## STUDY 1

### METHOD

*Data collection and analysis.* In interviews with 35 office employees and managers in Israel, people described their job and office space, how they feel about them, and what, how, or why they would change anything about them. Interviewees were encouraged to speak openly and freely in interviews that lasted between 30 minutes and 90 minutes. These data were coded for themes, and each theme was subsequently classified into one of the three dimensions (instrumentality, aesthetics, or symbolism), following the guidelines of Miles and Huberman (1994) and Strauss and Corbin (1998). For example, the following expressions, all of which are taken from the data, all refer to an office chair:

A person entering an office in our company can tell the status of the employee sitting in the room just by the chair.

I need the rotation feature of the chair so I can reach everything around me.

A mustard colored chair is a guest chair. It is a designer chair, more beautiful.

In the coding process, each of these phrases was linked to a different dimension. The first phrase was coded as referring to symbolism, the second to instrumentality, and the third to aesthetics.

### RESULTS

The data clearly revealed that all interviewees referred to all three dimensions. References to instrumentality included, for example, back support, anthropometric measurements, ergonomics, appropriate sitting position, adjustable for specific needs, and characteristics of different users. References to aesthetics included, for example, color, form, and texture. References to symbolism included various associations, such as "a managerial

chair," "a source of inspiration," "psychologically influential," or "fits the hierarchy."

Interviewees mentioned the three dimensions, although we did not prompt their responses. For example, a purchasing manager in one company first referred to symbolism as follows:

In this company, one's table or chair depends on one's position in the organizational hierarchy. Each level is assigned different firmness, design, luxuriousness. Also, size and breadth relay power. Size transmits economic wealth, success, status, position, and one's place in the organization.

The same respondent later referred to comfort, efficiency, and attractiveness of the furniture; hence, he also mentioned instrumentality and aesthetics:

We don't think of the clients but of the employees. What will be more comfortable? What will be nice for them. . . . Less comfortable chairs are meant for clients, so that they will not stay too long, though the client is not aware of this.

Table 1 summarizes the expressions used in the office descriptions and confirms that all expressions fit one of the three dimensions.

Some informants expressed certain priorities among the three dimensions, but even then, awareness of the three dimensions was clearly evident, as in the following case:

[First] a chair has to be comfortable and stable with adaptable movement of course, it is also important that the chair be attractive and suitable to office status.

Most important for me is that everything is organized so that I can reach it from my chair—the fax, printer, and shelves, that my desk has a slide-out keyboard shelf, so that it is comfortable for me to type. I sit here so many hours a day that it is very important that my office be nicely arranged and that it is an enjoyable and pleasant place in which to work. It makes me feel I get respect.

This employee mentioned all three dimensions: instrumentality (reaching everything), aesthetics (nicely arranged), and symbolism (get respect). Similar to this example, the full set of data of Study 1 verified the relevance of the three dimensions for analyzing office design. Based on these data and the three-dimension model, Study 2 developed a quantitative survey to support the argument that the three dimensions are empirically separate.

**TABLE 1**  
**Sample References to Three Dimensions of the Office Workspace in Informant Narratives**

| <i>Instrumentality Expressions</i>   | <i>Aesthetics Expressions</i>  | <i>Symbolism Expressions</i>  |
|--|--|---|
| It is uncomfortable to work here   | It is too dark for me  | Symbols of hierarchy  |
| All the materials you need are there   | It looks nice, it is difficult for me to leave                       | I wanted hi-tech, I wanted style, I wanted yuppie                                       |
| It is almost impossible to move in this office   | It is a good feeling to enter an aesthetically nice room             | Symbols of status and position  |
| Back comfort is important  | The massive wood is very nice  | Seems inaccessible  |
| It prevents normal communication   | Atmosphere of beauty   | Costly, prestigious   |
| An appropriate place for storage   | I like the color, it is nice   | We look as shabby as our office   |
| Most important is that the computer and printer function the way they should   | Everyone prefers to work in an office that is aesthetically pleasant | From the furniture it is possible to know the status of the person in the office        |
| The chair needs to be functional and very large, if the wheels are not of good quality, or if the springs are broken . . . | This is ugly, it is old as well as a mess                            | This office communicates "here you are in your element . . . here you can perform well" |
| It is appropriate for activities and designed according to the level of mobility   | The aesthetics of the furniture make it pleasant                     |   |
| Appropriate lighting according to need   | Decorative ornaments are important for an office                     |   |
| Support to rest one's head   |  |   |
| Disturbs the ability to concentrate  |  |   |

## STUDY 2

### METHOD

*Participants and data collection.* Three hundred employees were asked to respond to a survey pertaining to perceptions of office design: 49.3% (148 employees, 79 males and 68 females) completed and submitted the survey. Most respondents (66.2%) were 26 to 45 years old, with 12.8% under 25 and 20.9% more than 46. Tenure varied from 0.5 to more than 25 years, with an average of 7.5 years. The survey included 27 items (as summarized in Table 2), including measures of various aspects of the work office, a measure of perceived self-effectiveness (Warr, Cook, & Wall, 1979: Cronbach's alpha .73), and a measure of job satisfaction (Hackman & Oldham, 1975; Hanisch & Hulin, 1990: Cronbach's alpha = .72).

### RESULTS

Items measuring perceptions of office design were factor analyzed. A first analysis produced four similar factors both with a Varimax rotation and with a Promax rotation (Eigenvalue  $\geq 1.0$ ; see Table 2). Factors 1 and 4 represented instrumentality, and Factors 2 and 3 represented symbolism. Aesthetics blended with the first instrumentality factor. The overlap between instrumentality and aesthetics was examined in a second factor analysis, which separated instrumentality from aesthetics, as our theoretical analysis expected (see Table 3). Thus, the factor analysis suggested two instrumentality factors (which we could label *ability to perform* and *ability to adapt to your needs*) and two symbolism factors (status and identity).

Internal consistency (Cronbach's alpha) of the factors were as follows: Instrumentality—ability to perform = .85, instrumentality—adapting to needs = .69, aesthetics = .87, and symbolism—status = .80, symbolism—identity = .79. Thus, the data suggest a structure that is more complex than, but still consistent with, the theoretical model. There may be an overlap between instrumentality and aesthetics (Factor 1 in Table 2), and instrumentality and symbolism appear to contain subfactors. The intercorrelations among the factors, however, support the conceptual distinction of three dimensions (see Table 4). Finally, a Confirmatory Promax Factor Analysis of three factors was conducted, and a graphic display of the confirmatory analysis is depicted in Figure 1. A multidimensional scaling proximities analysis was also performed to closely examine the overlap among components and help verify the number of underlying dimensions. A graphic display of the component plot in a rotated space confirms three recognizable components, as evident in Figure 2.



TABLE 2  
Factor Loadings of Items Assessing Perceptions Of Office Design

| Survey Item  | Factor                               |                            |                              |                      |
|--|--------------------------------------|----------------------------|------------------------------|----------------------|
|  | 1<br>Instrumentality /<br>Aesthetics | 2<br>Symbolism /<br>Status | 3<br>Symbolism /<br>Identity | 4<br>Instrumentality |
| Office is adequate for performing job (I <sub>1</sub> )                      | .847 <sup>a</sup>                    | .096                       | .078                         | .171                 |
| Office hinders performance of work tasks (Reverse; I <sub>3</sub> )          | .704 <sup>a</sup>                    | -.058                      | .135                         | .396                 |
| I have the necessary workspace to perform my tasks (I <sub>2</sub> )         | .763 <sup>a</sup>                    | .156                       | -.027                        | .269                 |
| My office looks very nice (A <sub>1</sub> )                                  | .734 <sup>a</sup>                    | .277                       | .322                         | -.040                |
| My office is very pleasant (A <sub>2</sub> )                                 | .755 <sup>a</sup>                    | .372                       | .234                         | -.032                |
| My office is ugly (Reverse; A <sub>3</sub> )                                 | .752 <sup>a</sup>                    | .068                       | .242                         | .141                 |
| Offices reflect status in the organization (S <sub>1</sub> )                 | .091                                 | .659 <sup>a</sup>          | .152                         | -.169                |
| Offices reflect employees' contributions (S <sub>2</sub> )                   | .341                                 | .759 <sup>a</sup>          | .117                         | .046                 |
| Office reflects importance of employee to the organization (S <sub>4</sub> ) | -.012                                | .747 <sup>a</sup>          | .153                         | .266                 |
| Offices reflect company policies toward employees (S <sub>6</sub> )          | .063                                 | .763 <sup>a</sup>          | .206                         | .200                 |
| Offices represent organizational values (S <sub>5</sub> )                    | .211                                 | .573 <sup>a</sup>          | -.018                        | .299                 |
| My office is adaptable to my tasks (I <sub>4</sub> )                         | .456                                 | .199                       | .045                         | .620 <sup>a</sup>    |
| Office can be adjusted to my specific needs (I <sub>5</sub> )                | .137                                 | .196                       | .196                         | .799 <sup>a</sup>    |
| Office represents me and who I am (S <sub>6</sub> )                          | .373                                 | .229                       | .770 <sup>a</sup>            | .122                 |
| Office can help me distinguish myself (S <sub>7</sub> )                      | .045                                 | .072                       | .869 <sup>a</sup>            | .189                 |
| Organization allows me to represent myself (S <sub>8</sub> )                 | .276                                 | .295                       | .616 <sup>a</sup>            | -.031                |
| % of explained variance for each factor                                      | 41.0                                 | 12.5                       | 7.8                          | 6.6                  |

NOTE: N = 148. Eigenvalues > 1.0; factor analysis rotation method = Varimax.

a. These are items with high loading on factor. S<sub>1</sub>-S<sub>8</sub> = symbolism items; A<sub>1</sub>-A<sub>3</sub> = aesthetics items; I<sub>1</sub>-I<sub>5</sub> = instrumentality items.

**TABLE 3**  
**Factor Loadings of Items Assessing Perceptions of Instrumentality and Aesthetics of Office Design**

| Survey Item  | Component (Factor) |   |  |
|--|--------------------|---|--|
|  | 1<br>Aesthetics    | 2<br>Instrumentality—<br>Ability to Perform | 3<br>Instrumentality—<br>Adapting to Needs |
| Office is adequate for performing job (I <sub>1</sub> )                      | .381               | .807 <sup>a</sup>                           | .129                                       |
| I have the necessary workspace to perform my tasks (I <sub>2</sub> )         | .245               | .838 <sup>a</sup>                           | .199                                       |
| My office hinders my performance of my work tasks (Reverse; I <sub>3</sub> ) | .272               | .754 <sup>a</sup>                           | .285                                       |
| My office is very pleasant (A <sub>2</sub> )                                 | .830 <sup>a</sup>  | .328  | .130                                       |
| My office is ugly (Reverse; A <sub>3</sub> )                                 | .746 <sup>a</sup>  | .325  | .231                                       |
| My office looks very nice (A <sub>1</sub> )                                  | .905 <sup>a</sup>  | .226  | .130                                       |
| My office is adaptable to my tasks (I <sub>4</sub> )                         | .270               | .317  | .721 <sup>a</sup>                          |
| My office can be adjusted to specific needs (I <sub>5</sub> )                | .087               | .131  | .907 <sup>a</sup>                          |
| % of variance explained for each factor                                      | 55.9               | 13.1  | 9.7  |

NOTE:  $N = 148$ , Eigenvalues  $> 1.0$ ; factor analysis rotation method = Varimax.

a. These are items with high loading on factor. S<sub>1</sub>-S<sub>8</sub> = symbolism items; A<sub>1</sub>-A<sub>3</sub> = aesthetics items; I<sub>1</sub>-I<sub>5</sub> = instrumentality items.

**TABLE 4**  
**Intercorrelations Among Dimensions of Office Design,  
 Job Satisfaction, and Perceived Effectiveness**

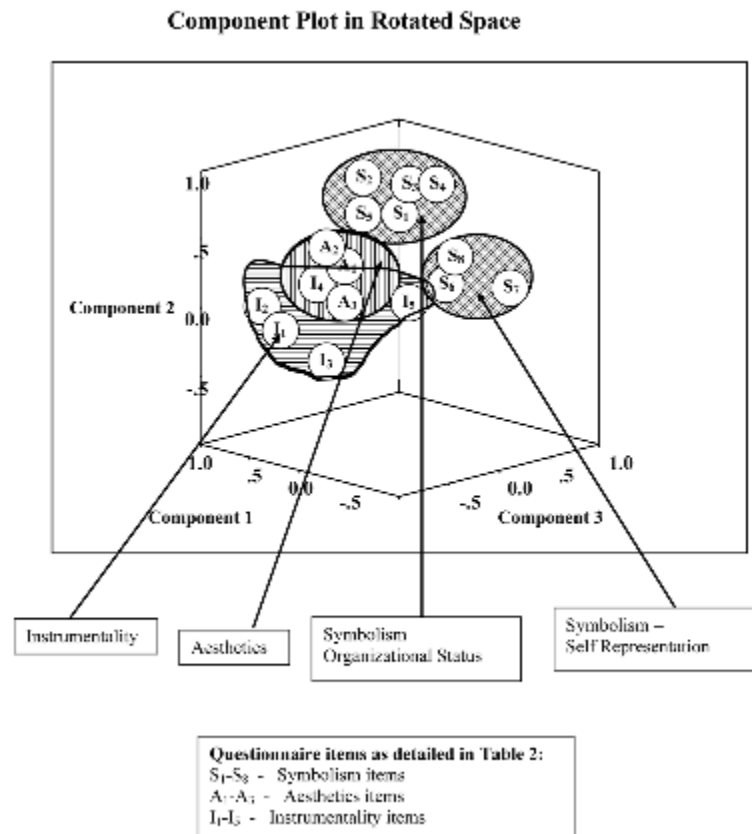
|  | 1      | 2      | 3      | 4      | 5      | 6      | 7    |
|--|--------|--------|--------|--------|--------|--------|------|
| 1. Job satisfaction                          | 1.00   |        |        |        |        |        |      |
| 2. Perceived effectiveness                   | 0.56** | 1.00   |        |        |        |        |      |
| 3. Instrumentality—<br>ability to perform    | 0.37** | 0.26** | 1.00   |        |        |        |      |
| 4. Instrumentality—<br>adaptability to needs | 0.37** | 0.27** | 0.52** | 1.00   |        |        |      |
| 5. Aesthetics                                | 0.41** | 0.21*  | 0.65** | 0.43** | 1.00   |        |      |
| 6. Symbolism of status                       | 0.17*  | 0.05   | 0.30** | 0.41** | 0.40** | 1.00   |      |
| 7. Symbolism of<br>self-representation       | 0.27** | 0.12   | 0.34** | 0.31** | 0.43** | 0.46** | 1.00 |

NOTE:  $n = 148$ .

\* $p < .05$ . \*\* $p < .01$ .

The results of these analyses confirmed the three basic dimensions. The Multidimensional Scaling (MDS) analysis revealed a stress index of 0.147 with two axes, which is below the convention of 0.15 and considered sufficient. The items in the two axes space identify three regions that correspond very well with our a priori classification of instrumentality, aesthetics, and symbolism (Figure 2). The axes of Figure 2 articulate differences between the three dimensions. Axis 1 (horizontal axis of Figure 2) separates between intrinsic features and external or associative features of an office. Aesthetics and instrumentality, both of which relate to features inherent to the office, are on the right side of this axis; whereas symbolism, which relates to associations to an office, is more to the left of this dimension. This finding—that the relationship between aesthetics and symbolism is not stronger—might be unexpected for design professionals who are trained to base their theoretical and practical work on Vitruvius's (1934) idea of delight, which incorporates both aesthetics and symbolism. It presents, however, an important elaboration of the basic understanding of the two dimensions.

Axis 2 (the vertical axis of Figure 2) separates individual, emotional features and formal, organizational features of an office. Organizational features at the top of the axis depict status symbolism; individual-emotional aspects are captured in the identity symbolism segment (lower left-hand side) and aesthetics (lower right-hand side). The figure paints a logical picture in placing status symbolism close to instrumentality, because in the office environment, an office that communicates an employee's status can help instrumentality by promoting respect of others to the organizational hierarchy. Identity symbolism, on the other hand, appears close to aesthetics,



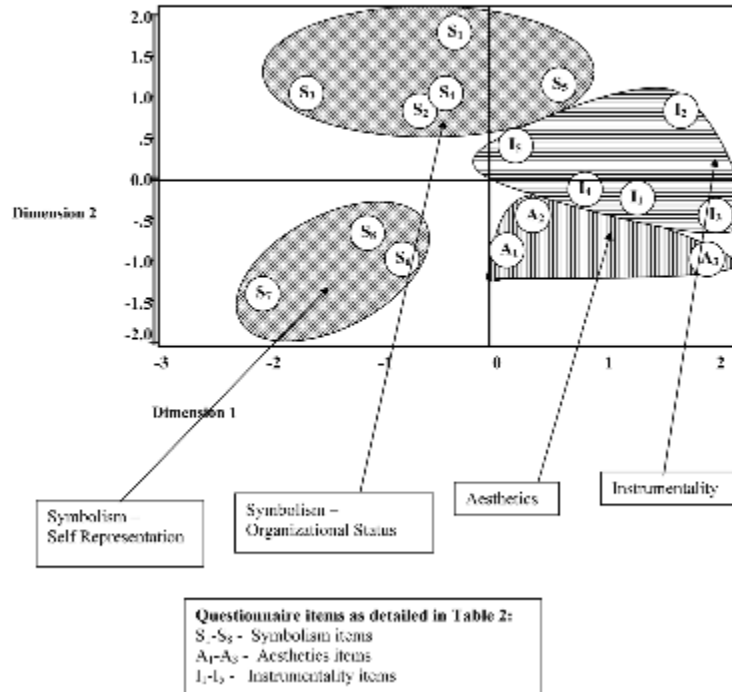
**Figure 1: Spatial Diagram of the Three Dimensions for Analyzing Office Design (Promax Rotation Factor Analysis).**

which is logical because personal preferences are aesthetically based (Nasar, 1994, 1997).

Thus, the idea of three separate dimensions of offices is supported and elaborated by the confirmatory and MDS analyses. Two elaborations are offered. Instrumentality comprises two aspects: ability to perform one's tasks and adaptability to adapt to individual needs. And symbolism comprises two aspects: symbolism of status and symbolism of identity.

*Relationship between dimensions of office design and outcome variables.*  
 The final step of our analysis was to investigate the relationship between

### Derived Stimulus Configuration Euclidean distance model



**Figure 2: Spatial Diagram of the Three Dimensions for Analyzing Office Design, Based on a Multidimensional Scaling Proximities Analysis**

dimensions of office design and reports of satisfaction and effectiveness. Factor analysis (Varimax Rotation, Eigenvalue  $\geq 1.0$ ) clearly separated between these two dependent variables. Intercorrelations among all the variables in the study are reported in Table 4. A hierarchical regression analysis employed the factor scores for each of the empirically revealed dimensions to predict the dependent variables, as reported in Tables 5 and 6. The two aspects of instrumentality were inputted first, aesthetics next, and, last, the two aspects of symbolism.

Both elements of instrumentality related significantly to job satisfaction, explaining 19% of the variance. Aesthetics contributed a separate and significant addition of 3% to the explained variance, whereas symbolism did not

**TABLE 5**  
**Hierarchical Regression Predicting Job Satisfaction**  
**by Aspects of Office Design**

| <i>Variable Entered</i>               | <i>Stage 1</i> | <i>Stage 2</i> | <i>Stage 3</i> |
|---------------------------------------|----------------|----------------|----------------|
| Instrumentality—ability to perform    | .27**          | .13            | .14            |
| Instrumentality—adaptability to needs | .23*           | .19*           | .20*           |
| Aesthetics                            |                | .24*           | .22*           |
| Symbolism of status                   |                |                | -.10           |
| Symbolism of self-representation      |                |                | .10            |
| Adjusted $R^2$                        | .19            | .22            | .23            |

NOTE:  $N = 148$ .  
 \* $p < .05$ . \*\* $p < .01$ .

**TABLE 6**  
**Hierarchical Regression of Dimensions of**  
**Office Design Predicting Perceived Effectiveness**

| <i>Variable Entered</i>               | <i>Stage 1</i> | <i>Stage 2</i> | <i>Stage 3</i> |
|---------------------------------------|----------------|----------------|----------------|
| Instrumentality—ability to perform    | .16            | .13            | .15            |
| Instrumentality—adaptability to needs | .19*           | .19*           | .22*           |
| Aesthetics                            |                | .04            | .04            |
| Symbolism of status                   |                |                | -.13           |
| Symbolism of self-representation      |                |                | .04            |
| Adjusted $R^2$                        | .09            | .09            | .11            |

NOTE:  $N = 148$ .  
 \* $p < .05$ .

make a significant contribution to job satisfaction. Only adaptability to personal needs contributed significantly to perceived self-effectiveness, explaining 9% of the variance. None of the other dimensions made a substantial contribution to this variable.

## DISCUSSION

This effort advances a model for future investigation of workplace design, analysis, and influence. Our results confirm both qualitatively and quantitatively that people recognize three separate dimensions of office design: instrumentality, aesthetics, and symbolism. Instrumentality was found to be related to employee satisfaction and effectiveness, whereas aesthetics was

related only to satisfaction, and symbolism was not related to satisfaction or effectiveness.

That no relationship was found between symbolism and job satisfaction or job performance is remarkable, suggesting that employees are less sensitive to symbolism than has been suggested (Jones, 1996; Rafaeli & Worline, 2000). Alternatively, it may be that symbolism is not a variable that influences individual-level variables but rather organizational-level variables, such as organizational culture (Schein, 1990; Trice & Beyer, 1993). For example, Bitner (1992) and Swartz (1983) might suggest that symbolism influences noncompany individuals, such as visitors or customers, rather than employees.

It is also possible that our assessments captured employees' perceptions of symbolism of their work environment but failed to capture the extent to which employees are content with this symbolism. For example, an employee may feel that the office environment reflects status in the organization but may be discontent with the specific status endowed on him or her by his or her own office. A junior secretary may recognize the link between status in the organization and office design but may feel he or she deserves the status and associated work environment of a manager. Future analyses must separate these two notions.

Our findings could not unravel relationships among the three dimensions. It is conceivable that people may hold certain priorities; for example, instrumentality might be more important than aesthetics or symbolism. Positive instrumentality may be a necessary element of the work environment, without which there is no reason to even consider aesthetics or symbolism. Several interviewees reiterated this idea:

I can live with the fact that this place is not pretty or does not respect my position . . . but look at how there is not enough room for everything; it is crowded and jam-packed. The files are on top of each other and fall from the shelves. That is the worst thing. It is impossible to work like this.

I need to concentrate, I need quiet; I need to hold meetings. If there is no insulation of the walls then there is noise, and it is impossible to concentrate, it is difficult to work, and nothing can be done. Does it help me that the walls are painted in nice colors?

These quotes were not a part of the focus of the current data analysis, but we mention them in closing as suggestions for future research on priorities among dimensions.

In summary, office environments must be planned, designed, and built (Carnevale, 1992). This effort identifies three dimensions that can be used for

both planning and evaluation of office environments. As noted by Barclay and York (2001), "organizational change processes can fail because the physical environment was not considered" (p. 56). The three-dimension model described and validated in this study may help avoid such failures (Vilnai-Yavetz & Rafaeli, 2005). Given that the model was developed on analyses of a bus (Rafaeli & Vilnai-Yavetz, 2004a, 2004b) and found to be valid here, it may also facilitate planning other physical artifacts and environments.

### REFERENCES

- Baker, J. (1998). Examining the informational value of store environment. In J. F. Sherry, Jr. (Ed.), *Servicescapes: The concept of place in contemporary markets* (pp. 55-79). Chicago: NTC Business Books.
- Baldry, C. (1997). The social construction of office space. *International Labour Review*, 136(3), 365-378.
- Barclay, L. A., & York, K. M. (2001). Space at work: Exercises in the art of understanding physical indicators of culture. *Journal of Management Education*, 25(1), 54-69.
- Bateson, J. E. G. (1995). *Managing services marketing* (3rd ed.). London: Dryden.
- Becker, F. D. (1981). *Workspace: Creating environments in organizations*. New York: Praeger.
- Becker, F. D. (1991). Workplace planning, design, and management. In E. H. Zube & G. T. Moore (Eds.), *Advances in environment, behavior, and design* (pp. 115-151). New York: Plenum.
- Berleant, A. (1988). Aesthetic perception in environmental design. In J. L. Nasar (Ed.), *Environmental aesthetics: Theory, research and applications* (1st ed., pp. 84-97). New York: Cambridge University Press.
- Bitner, M. J. (1992). Servicescapes: The impact of physical surroundings on customers and employees. *Journal of Marketing*, 56, 57-71.
- Canter, D. (1997). The facets of place. In E. H. Zube & G. T. Moore (Eds.), *Advances in environment, behavior, and design* (pp. 109-147). New York: Plenum.
- Carnevale, D. G. (1992). Physical settings of work: A theory of the effects of environmental form. *Public Productivity & Management Review*, 15(4), 423-431.
- Carnevale, D. G., & Rios, J. M. (1995). How employees assess the quality of physical work settings. *Public Productivity & Management Review*, 18(3), 221-230.
- Csikszentmihalyi, M., & Rochberg-Halton, E. (1981). *The meaning of things: Domestic symbols and the self*. New York: Cambridge University Press.
- Dandridge, T. C., Mitroff, I., & Joyce, W. F. (1980). Organizational symbolism: A topic to expand organizational analysis. *Academy of Management Review*, 5(1), 77-82.
- Davis, T. R. V. (1984). The influence of the physical environment in offices. *Academy of Management Review*, 9(2), 271-283.
- Dean, J. W. J., Ramirez, R., & Ottensmeyer, E. (1997). An aesthetic perspective on organizations. In C. L. Cooper & S. E. Jackson (Eds.), *Creating tomorrow's organization* (pp. 419-437). New York: John Wiley.
- Fowler, A. (1995). How to conduct an ergonomic review. *People Management*, 18(1), 45-48.



- Frost, P., & Morgan, G. (1983). Symbols and sensemaking: A realization of a framework. In L. R. Pandy, P. Frost, G. Morgan, & T. Dandridge (Eds.), *Organizational symbolism* (pp. 207-237). Greenwich, CT: JAI.
- Gaedeke, A. R. (1994). How well do you manage your office environment? *Manager's Magazine*, 69(10), 25-27.
- Gagliardi, P. (Ed.). (1992). *Symbols and artifacts: View from the corporate landscape*. New York: Walter de Gruyter.
- Garling, T., & Golledge, R. G. (1989). Environmental perception and cognition. In E. H. Zube & G. T. Moore (Eds.), *Advances in environment, behavior, and design* (pp. 203-236). New York: Plenum.
- Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston: Houghton Mifflin.
- Gifford, R., Hine, D. W., Muller-Clemm, W., Reynolds, D. J., & Shaw, K. T. (2000). Decoding modern architecture. *Environment and Behavior*, 32(2), 163-187.
- Goodrich, R. (1982). Seven office evaluations. *Environment and Behavior*, 14(3), 353-378.
- Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, 60, 159-170.
- Hanisch, C. A., & Hulin, C. L. (1990). Job attitudes and organizational withdrawal. *Journal of Vocational Behavior*, 37(1), 60-78.
- Hatch, M. J. (1997). *Organization theory: Modern symbolic and post modern perspectives*. New York: Oxford University Press.
- Heft, H. (1997). The relevance of Gibson's ecological approach to perception for environment—behavior studies. In E. H. Zube & G. T. Moore (Eds.), *Advances in environment, behavior, and design* (Vol. 4, pp. 71-108). New York: Plenum.
- Hershberger, R. G., & Cass, R. C. (1988). Predicting user responses to buildings. In J. L. Nasar (Ed.), *Environmental aesthetics* (pp. 195-211). Cambridge, UK: Cambridge University Press.
- Howell, W. C. (1994). Human factors in the workplace. In M. Dunnette, L. Hough, & H. Triandis (Eds.), *Handbook of I/O psychology* (2nd ed., pp. 209-269). Palo Alto, CA: Consulting Psychologists Press.
- Hummel, R. (1983). Manager and worker: Phenomenology of time consciousness and rational style. In W. H. Ittelson (Ed.), *Environment and cognition* (pp. 1-12). New York: Seminar Press.
- Jones, M. O. (Ed.). (1996). *Studying organizational symbolism: What, how, why?* (Vol. 39). Thousand Oaks, CA: Sage.
- Lang, J. (1988). Symbolic aesthetics in architecture: Toward a research agenda. In J. L. Nasar (Ed.), *Environmental aesthetics* (1st ed., pp. 11-26). UK: Cambridge University Press.
- Leaman, A. (1993). Productivity and discomfort. *Facilities*, 11(7), 28.
- Leather, P., Pyrgas, M., Beale, D., & Lawrence, C. (1998). Windows in the workplace: Sunlight, view, and occupational stress. *Environment and Behavior*, 30(6), 739-762.
- Marans, R. W., & Spreckelmeyer, K. F. (1982). Evaluating open and conventional office design. *Environment and Behavior*, 14(3), 333-351.
- Markus, T. A. (1987). Buildings as classifying devices. *Environment and Planning B, Planning and Design*, 14, 467-484.
- Maslow, A. H., & Mintz, N. L. (1972). Effects of aesthetic surroundings: Initial short-term effects of three aesthetic conditions upon perceiving "energy" and "well-being" in faces. In R. Gutman (Ed.), *People and buildings* (pp. 212-219). New York: Basic Books.
- Miles, M. A., & Huberman, M. A. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, CA: Sage.

- Mintz, N. L. (1972). Effects of aesthetic surroundings: 2. Prolonged and repeated experience in a "beautiful" and an "ugly" room. In R. Gutman (Ed.), *People and buildings* (pp. 220-228). New York: Basic Books.
- Morrow, P. C., & McElroy, J. C. (1981). Interior office design and visitor response. *Journal of Applied Psychology, 66*(5), 646-650.
- Nasar, J. L. (1994). Urban design aesthetics: The evaluative qualities of building exteriors. *Environment and Behavior, 26*(3), 377-401.
- Nasar, J. L. (1997). New developments in aesthetics for urban design. In E. H. Zube & G. T. Moore (Eds.), *Advances in environment, behavior, and design* (pp. 149-193). New York: Plenum.
- Nielsen, J. (1994). *Usability engineering*. San Francisco: Morgan Kaufman.
- Oldham, G. R., Cummings, A., & Zhou, J. (1995). The spatial configuration of organizations. *Research in Personnel and Human Resources Management, 13*, 1-37.
- Ornstein, S. (1986). Organizational symbols: A study of their meanings and influences on perceived psychological climate. *Organizational Behavior and Human Decision Processes, 38*, 207-229.
- Parker, D. R. (1994). Designing the future workplace. *American Society for Information Science, 20*(5), 21-22.
- Pondy, L. R., Frost, P. J., Morgan, G., & Dandridge, T. C. (Eds.). (1983). *Organizational symbolism*. Greenwich, CT: JAI.
- Rafaeli, A., & Pratt, M. (Eds.). (2005). *Artifacts and organizations: Beyond mere symbolism*. Mahwah, NJ: Lawrence Erlbaum.
- Rafaeli, A., & Vilnai-Yavetz, I. (2004a). Instrumentality, aesthetics, and symbolism of physical artifacts as triggers of emotion. *Theoretical Issues in Ergonomics Science, 5*(1), 91-112.
- Rafaeli, A., & Vilnai-Yavetz, I. (2004b). Emotion as a connection of physical artifacts and organizations. *Organization Science, 15*(6), 671-686.
- Rafaeli, A., & Worline, M. (2000). Symbols in organizational culture. In N. Ashkenazy, C. Wilderom, & M. Peterson (Eds.), *Handbook of organizational culture and climate* (pp. 71-84). Thousand Oaks, CA: Sage.
- Schein, E. (1990). Organizational culture. *American Psychologist, 45*, 109-119.
- Sommer, R. (1969). *Personal space: The behavioral basis of design*. Englewood Cliffs, NJ: Prentice Hall.
- Sommer, R. (2002). Personal space in a digital age. In R. B. Bechtel & A. Churchman (Eds.), *Handbook of environmental psychology* (2nd ed., pp. 647-660). New York: John Wiley.
- Stone, N. J., & English, A. J. (1998). Task type, posters, and workspace color on mood, satisfaction, and performance. *Journal of Environmental Psychology, 18*, 175-185.
- Strati, A. (1992). Aesthetic understanding of organizational life. *Academy of Management Review, 17*(3), 568-581.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. London: Sage.
- Sundstrom, E., Herbert, R. K., & Brown, D. W. (1982). Privacy and communication in an open plan office. *Environment and Behavior, 14*(3), 379-392.
- Sutton, R., & Rafaeli, A. (1987). Characteristics of work stations as potential occupational stressors. *Academy of Management Journal, 30*(2), 260-276.
- Swartz, T. A. (1983). Brand symbols and message differentiation: Viable tools for product differentiation? *Journal of Advertising Research, 23*(5), 59-64.
- Thiel, P. (1997). *People, paths and purposes: Notations for a participatory envirotecture*. Seattle: University of Washington Press.

- Trice, H. M., & Beyer, J. M. (1993). *The cultures of work organizations*. Englewood Cliffs, NJ: Prentice Hall.
- Vilnai-Yavetz, I., & Rafaeli, A. (2005). Managing organizational artifacts to avoid artifact myopia. In A. Rafaeli & M. Pratt (Eds.), *Artifacts and organizations: Beyond mere symbolism* (pp. 7-15). Mahwah, NJ: Lawrence Erlbaum.
- Vitruvius. (1934). *Vitruvius on architecture*. Boston: Harvard University Press.
- Vitruvius. (1960). *The ten books on architecture*. New York: Dover.
- Wah, L. (1998). The power office. *Management Review*, 87(5), 10-14.
- Warr, P. B., Cook, J., & Wall, T. D. (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology*, 52, 129-148.
- Yanow, D. (1998). Space stories: Studying museum buildings as organizational spaces. *Journal of Management Inquiry*, 7(3), 215-239.