

# Application Of Two Social Psychological Theories To The Study Of Housing

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Recent environmental crises and increasing awareness of problems thought to be associated with overpopulation and urban conglomeration have sparked considerable interest in environmental psychology. Environmental psychology is a problem-oriented, interdisciplinary approach to the study of the effects of the built and natural environments on human behavior. Developments within one of the parent disciplines, social psychology, also reflect increased concern with environmental issues. There has been a growth of interest in such areas as interpersonal space, crowding, and territoriality. Typically, social psychological research proceeds from analytical, experimental paradigms. Explanatory systems are generally based on abstract conceptualizations that describe and summarize the relation-

ship between specified behavior and causal antecedents. Pressing environmental issues are typically stated in more global terms and explanatory systems tend to be more descriptive and ad hoc. Examinations of environmental issues from the perspective of social psychological theories may yield increased theoretical rigor and conceptually integrated data. This article explores the potential value of two social psychological theories in examinations of the relationship between housing and human behavior.

One of the stimulants of research on the effects of crowding on human behavior is evidence that crowding in animals leads to behavioral, physiological, and social pathology (Calhoun, 1962; Christian, 1963). However, behavioral breakdown has not been found to be a constant consequence of human crowding (e.g., Freedman, 1975). While residential crowding has been found to lead to limited forms of social pathology (e.g., Mitchell, 1971; Gasparini, 1973) there is evidence that social/structural factors and efficient space scheduling can mitigate potential

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negative consequences (Anderson, 1972; Draper, 1973; Mitchell, 1975). Since aerial and residential crowding produce mixed results, the psychological theories chosen for examination of housing behavior contain mechanisms that allow specification of the antecedents of behavioral enhancement and impairment.

The drive theory of social facilitation (Cottrell, 1968; 1972; Weiss and Miller, 1971) predicts facilitation and impairment of task performance as a function of task and social variables. The presence of audiences and coactors that signify potential social punishment is assumed to increase arousal. Relatively neutral audiences have no arousal effect. Arousal impairs performance on learning tasks in which the dominant response is not correct. Arousal facilitates performance on well-learned tasks in which the dominant response is correct (see Cottrell, 1972). A drive theory of social facilitation thus contains a mechanism for predicting performance enhancement and impairment as functions of social stimulation. Social stimulation in a dwelling unit is partially determined by number of people in the unit, number of people per room, and structural features of the dwelling unit. Thus a drive theory of social facilitation can illuminate the relationship between task performance and social and structural features of housing.

The second psychological theory to be discussed deals with control of the environment. One of the consequences of crowding is perceived and actual inability to control what goes on in a given space. This proposition has been advanced and supported in environmental psychology (Proshansky, Ittleson, and Rivlin, 1970; Zlutnick and Altman, 1972) and social psychology (Duke and Nowicki, 1972; Sherrod, 1974; Rodin, 1976). An analysis of the effects of crowding in housing units also supports a power/control formulation (Baldassare, 1977). In learned helplessness research (Seligman and Maier, 1967; Hiroto and Seligman, 1975) subjects' control over the consequences of responding is varied and then performance on a post-treatment task is measured. The general finding is impaired performance following

experience with a contingency of independence between performance and outcome (Maier and Seligman, 1975). Since residential density affects control relevant experiences and since residential density has been found to interact with laboratory manipulations of learned helplessness (Rodin, 1976), the learned helplessness paradigm can also be used to illuminate the relationship between behavior and social and structural features of housing.

The two expositions that follow are intended as illustrative and exemplary of ways in which experimental paradigms used by psychologists can be taken into the house. The approach presents the challenge of structuring analyses of housing behavior to accommodate the variables that are significant within the paradigms. The suggested value of the approach is that the data thus gathered are integrated within a theoretical framework that specifies causal relationships between housing factors and behavior.

### **Social Facilitation**

As indicated in the introduction, the performance effects that are associated with observation and coaction (i.e., having others working independently on the same task) are in part due to the presence of others signifying social censure or potential negative evaluation. One of the factors that influences social arousal is the degree of surveillance: Can passive spectators and coactors see the individual at work? Can they see the product of his/her work? Empirical evidence indicates that arousal is generally an increasing function of degree of surveillance (Cottrell, Wack, Sekerak, & Rittle, 1968; Martens and Lnders, 1972; Sasfy and Okun, 1974). It is therefore suggested that the social facilitation paradigm can be used to examine the relationship between task performance and features of housing that affect amount and type of social surveillance.

Proceeding from a definition of crowding as excessive social stimulation, Desor (1972) hypothesized that crowding can be alleviated by

alteration of architectural features of space as well as by decreasing the number of people per unit of space. Architectural features that reduce interpersonal perception within a space should reduce the level of crowding in that space. Such features include: sound-absorbing materials, partitioning, minimizing the number of windows, doors, and mirrors, maximizing the disparity between the linear dimensions of the space, low lighting levels, and high nonsocial noise. Using a projective technique Desor found that subjects' judgements of crowding were affected by partitions, doors, and disparity between the linear dimensions of the space. Architectural manipulations like those listed above affect perceived and actual social surveillance, and therefore should affect task performance. The basic prediction is that architectural features that reduce interpersonal perception should lower social arousal and therefore aid performance on learning tasks in which the dominant response is not correct and impair performance on well-learned tasks in which the dominant response is correct.

The goal of the present effort is the generation of prescriptive statements regarding the design and use of space to improve individual household members' performance of everyday tasks. Typically, social facilitation studies involve a short-term, controlled manipulation of surveillance. The performance measure is generally a laboratory task that is a validated index of arousal. To use this paradigm for the generation of a prescriptive statement regarding complex practical issues, it is necessary to extend and develop methodology. The work has to be taken to the field and the problem has to be formulated in terms that are amenable to the desired analysis while maintaining the integrity of the phenomenon of interest. A dwelling unit provides a given amount of space per individual. Holding density constant in what ways can architectural features provide optimal social stimulation and surveillance for a given task? Extensive observation of task behavior in intact dwelling units can provide a starting point. Each dwelling unit can be described in terms of the architectural features that affect interpersonal

perception (e.g., partitions, doors, windows, shape of rooms, soundproofing, etc.). Given the presence or absence of each architectural feature, here do the occupants work on particular tasks? How often do other occupants intrude? How often does the worker become cognizant of the presence of others? What is the extent of each intrusion? Does the worker perform successfully and efficiently?

A simple descriptive summary of such data may be of interest. However, it is suggested that the usefulness of the data is enhanced by analysis in terms of an established theoretical framework. This allows integration of diverse findings and suggests experimental work that can lead to the induction of causal statements that allow prediction and thus allow application to the solution of problems. Each task that was performed by a member of the household can be characterized in terms of the learning-performance (simple-complex) distinction that underlies the relationship between arousal and task performance (see Spance and Spence, 1966). The relationship between efficient performance on simple and complex tasks and social/structural features of housing can then be described: Within given densities and availabilities of architectural features that affect interpersonal perception, which particular setting within the house is associated with enhanced performance on simple tasks and impaired performance on complex tasks? What architectural features appear to be associated with efficient task performance?

Once descriptive relationships between social/structural features of housing and task performance are culled from naturalistic observation, it is possible to conduct experiments that isolate significant variables. Such experiments are based on naturally occurring phenomena and are thus relevant to the solution of practical problems. Since the variables are chosen on the basis of observation and interviews within the dwelling unit, the house itself can be used as the laboratory. If based on established theory, such experiments yield conceptually integrated data that can be used in the formulation of relatively rigorous predictions. The variables thought significant

from an analysis of observational and survey data can be examined independently or factorially. For example: Households with similar space:person ratios can be compared. Within such a population a randomly selected group of individuals would be asked to perform a series of tasks in one type of setting and a randomly selected group of individuals would be asked to perform in another type of setting. Architectural features and social structures can be controlled, varied, and/or used as blocking variables. This would depend on the particular housing feature being examined, its potential interactions with other housing features, and the availability of naturally occurring variation in the feature of interest. A series of experiments that methodically explore the effects of social/architectural features (e.g., number of people per dwelling unit, number of people per unit of space, partitions, room shape, number of windows, doors, and mirrors, etc.) on tasks that reflect arousal can be used to formulate a theory of housing design and social arousal. Such a theory can be used to generate prescriptive statements regarding housing design.

#### **Learned Helplessness**

In an effort to account for the discrepant findings regarding the relationship between density and behavior, Sherrod (1974) suggested that perceived control over crowding can ameliorate its negative consequences. This was supported in the finding that subjects who worked in a crowded environment suffered reduced frustration tolerance on a post crowding task. Subjects who were given the option of leaving the crowded situation did better on the frustration tolerance task even though they did not exercise their control/freedom option. Rodin (1976) found that children from high density dwellings did not exercise an option to choose their own rewards as often as children from lower density dwellings. Further, experience with an unsolvable task had a greater negative impact on subsequent performance on a solvable task for children from high density homes. The latter finding provides relatively direct support for the proposition that ex-

perience with high density can function like a "learned helplessness" manipulation in which outcomes are independent of performance (see Seligman and Maier, 1967). Further evidence in support of a control formulation comes from field studies that find control of the residential environment to exert a profound effect on the physical and psychological health of elderly people (Langer and Rodin, 1976; Schultz, 1976). Correlational studies indicate that density effects are most significant among populations already low in environmental control: the young (Booth, 1975), lower classes, (Mitchell, 1971) and prisoners (D'Atri, 1975). These data are in accord with analyses of privacy and freedom in the environment (Proshansky, Ittleson, and Rivlin, 1970; Zlutnick and Altman, 1972) and a housing literature that finds control and scheduling of residential space to mediate the relationship between residential density and social/behavioral pathology (see Baldassare, 1977).

The goal of the present effort is the generation of a prescriptive statement regarding the design and use of space to maximize individual household members' perceptions of control and thus ameliorate potential negative effects of high residential density. It has been demonstrated that space scheduling, social relations, and structural factors mitigate simple pathological effects of residential crowding (see Greenfield and Lewis, 1969; Mitchell, 1971; Anderson, 1972; Baldassare, 1977). The present effort proceeds from the assumption that when a household unit moves into a new dwelling, space scheduling and territorial assertions break down until the group adjusts to the new residence. Therefore members of households that have recently moved will experience a sense of loss-of-control. If the dwelling can accommodate the needs of the residents, this effect will diminish. If the dwelling is inadequate to their needs, the effect will persist. It is thus suggested that longitudinal analyses of control-relevant behavior of people who have recently moved can be used to assess the relationship between structural features of housing and behavior.

The suggested work would begin with an empirical assessment of control-related behavior of

people who have recently moved to a new residence. The tasks used by Rodin (1976) would be administered to recent movers and nonmovers. It is expected that recent movers will have a decreased expectancy that their behavior will affect their outcomes. They will be less inclined to exercise control in selection of possible rewards. Experience with an unsolvable task (i.e. an experimental manipulation of uncontrollability) will have a greater negative impact on subsequent performance of a solvable task for recent movers.

A group of recent movers who evidence a sense of loss-of-control can be used for examinations of the suitability of dwellings for satisfaction of the needs of the residents. It is expected that the loss-of-control effect will diminish if the dwelling can accommodate the occupants' needs. Following a procedure suggested by Rodin (1976), the experimental tasks designed to measure control-related behaviors can be correlated with natural variations in social and structural housing features that are thought to be significant. Factors that have been shown to affect control related behaviors include: number of people, age distribution, sexual composition, relationships, personality factors (i.e., locus of control—see Sherrod & Cohe, 1977), total amount of space, room size, room shape, and soundproofing. Recent movers who demonstrate loss-of-control effects would be retested at regular intervals. It is expected that in some instances the effect will diminish with time and in some instances it will not. A correlational analysis of the relationship between a regained sense of control and housing factors can then be used to generate statements regarding optimal housing designs for particular household compositions.

### Conclusions

The two expositions of research ideas are intended as illustrative of a manner in which experimental research paradigms used by psychologists can be exploited for examinations of housing. They are not seen as providing definitive statements regarding the effects of housing on

behavior. Nor are they intended as representative of the possible contributions social psychology can make to the study of housing. Typically, social psychological contributions to the study of housing involve application of self-report measures and attitude theories that are used by social psychologists. The purpose of this paper is demonstration of the potential applicability of learning/performance theories that predict task performance effects. The social facilitation and learned helplessness theories were formulated from examinations of the effects of experimental manipulations on laboratory tasks. Practical applications of these and other learning theories require extensions of theoretical constructs and the type of correlational-experimental research methods illustrated above. One value of this approach is decreased reliance on self-report measures. The basic goal of this type of approach is induction of relatively rigorous theories that can be used to predict the relationship between housing and behavior, thereby allowing deductions of prescriptive statements regarding housing design.

### References

- Anderson, E. N. Jr. (1972) "Some Chinese Methods of Dealing With Crowding." *Urban Anthropology*, 1: 141-150.
- Baldassare, M. (1977) "Residential Density, Household Crowding and Social Networks." Pp 99-187 in C. S. Fischer, R. M. Jackson, A. Steuve, K. Gerson, L. Jones and M. Baldassare (eds.) *Networks and Places*. New York: Free Press.
- Booth, A. (1957) "Final Report: Urban Crowding Project." Ministry of State for Urban Affairs, Canada.
- Calhoun, J. B. (1962) "Population Density and Social Pathology." *Scientific American*, 206: 139-148.
- Christian, J. J. (1963) "The Pathology of Overpopulation." *Military Medicine*, 128: 571-603.

- Cottrell, N. B. (1968) "Performance in the Presence of Other Human Beings: Mere Presence, Audience, and Affiliation Effects." Pp 91-110 in E. C. Simmel, R. A. Hoppe, and G. A. Milton (eds.) *Social Facilitation and Imitative Behavior*. Boston: Allyn & Bacon.
- , (1972) "Social Facilitation." Pp 185-236 in C. G. McClintock (ed.) *Experimental Social Psychology*. New York: Holt, Rinehart and Winston.
- , Wack, D. L., Sekerak, C. J. and Rittle, R. H. (1968) "Social Facilitation of Dominant Responses by the Presence of an Audience and the Mere Presence of Others." *Journal of Personality and Social Psychology*, 9: 245-250.
- D'Atri, D. A. (1975) "Psychophysiological Responses to Rowding." *Environment and Behavior*, 7: 237-252.
- Desor, J. A. (1972) "Toward a Psychological Theory of Crowding." *Journal of Personality and Social Psychology*, 21: 79-83.
- Draper, D. (1973) "Crowding Among Hunter-Fatherers: The !Kung Bushmen." *Science*, 177: 301-302.
- Duke, M. P. and Nowicki, S. (1972) "A New Measure and Social-Learning Model for Interpersonal Distance." *Journal of Experimental Research in Personality*, 6: 119-132.
- Freedman, J. L. (1975) *Crowding and Behavior*. San Francisco: Freeman and Co.
- Gasparini, A. (1973) "Influence of the Swelling on Family." *Ekistics*, 216: 344-348.
- Greenfield, R. J. and Lewis, J. F. (1969) "An Alternative to a Density Function of Overcrowding." *Land Economics*, 45: 282-285.
- Hiroto, D. S. and Seligman, M. E. P. (1975) "Generality of Learned Helplessness in Man." *Journal of Personality and Social Psychology*, 31: 311-328.
- Langer, E. J. and Rodin, J. (1976) "The Effects of Choice and Enhanced Personal Responsibility for the Aged: A Field Experiment in an Institutional Setting." *Journal of Personality and Social Psychology*, 34: 191-198.
- Maier, S. F. and Seligman, M. E. P. (1976) "Learned Helplessness: Theory and Evidence." *Journal of Experimental Psychology: General*, 105: 3-46.
- Martens, R. and Landers, D. M. (1972) "Evaluation Potential as a determinant of coaction effects." *Journal of Experimental Social Psychology*, 8: 347-359.
- Mitchell, R. E. (1971) "Some Social Implications of High Density Housing." *American Sociological Review*, 36: 18-29.
- , (1975) "Ethnographic and Historical Perspectives on Relationships Between Physical and Socio-Spatial Environments." *Sociological Symposium*, 14: 25-40.
- Proshansky, H. M. Ittleson, W. and Ivlin, L. G. (1970) "Freedom of Choice and Behavior in a Physical Setting." Pp 173-183 in H. Proshansky, W. Ittleson, and L. Rivlin (eds.) *Environmental Psychology*. New York: Holt.
- Rodin, J. (1976) "Density, Perceived Choice, and Responses to Controllable and Uncontrollable Outcomes." *Journal of Experimental Social Psychology*, 12: 564-578.
- Sasfy, G. and Okun, K. (1974) "Form of Evaluation and Audience Expertness as Joint Determinants of Audience Effects." *Journal of Experimental Social Psychology*, 10: 461-467.
- Schultz, R. (1976) "Effects of Control and Predictability on the Physical and Psychological Well-Being of the Institutionalized Aged." *Journal of Personality and Social Psychology*, 33: 282-285.
- Seligman, M. E. P. and Maier, S. F. (1967) "Failure to Escape Traumatic Shock." *Journal of Experimental Psychology*, 74: 1-9.
- Sherrod, D. R. (1974) "Crowding, Perceived Control, and Behavioral After Effects." *Journal of Applied Social Psychology*, 4: 171-186.
- Spence, J. T. and Spence, K. W. (1966) "The Motivational Components of Manifest Anxi-

- etys: Drive and Drive Stimuli." Pp 291-327 in C. D. Spielberger (ed.) *Anxiety and Behavior*. New York: Academic Press.
- Weiss, R. F. and Miller, F. M. (1971) "The Drive Theory of Social Facilitation." *Psychological Review*, 78: 44-57.
- Zlutnick, S. and Altman, I. (1972) "Crowding and Human Behavior." In J. F. Wohlwill and D. H. Carson (eds.) *Environment and the Social Sciences*. Washington: American Psychological Association.