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Conceptualizing Time and Behavior in Environmental Gerontology: A Pair of Old Issues Deserving New Thought

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Architects, environmental designers, occupational therapists, and human service professionals are variously engaged in efforts to create settings for older persons that better fit their changing lifestyles and abilities. This theoretical article argues that to explain and predict more effectively the appropriateness of the settings occupied and used by their older occupants requires models and empirical inquiries that better conceptualize two areas of inquiry: (a) the temporal properties of environments and individuals and (b) the conceptualization of environmental behaviors or activities describing how individuals use, manipulate, or perform tasks in their settings. The types of constructs and relationships necessary for this inquiry are reviewed and their practical applications considered.

A major goal of the theories constructed by environmental gerontologists is to explain and predict more effectively why some residential settings more than others better fit the needs and abilities of their older occupants and contribute to their better quality of life (Lawton, 1991). The premise is that place matters, that "it is better, more enjoyable, easier, and less adaptationally costly to grow old in some places than in others" (Golant, 1984b, p. 2). This article argues that these past theoretical efforts have failed to incorporate adequately two areas of inquiry that promise to explain and predict more effectively the appropriateness of the settings occupied and used by their older occupants. These include (a) the conceptualization of the temporal properties of environments and individuals and (b) the conceptualization of environmental behaviors or activities describing how individuals use, manipulate, or perform tasks in their settings.

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Researchers and practitioners are likely to confront the temporal outcomes of older people's environment and aging relationships in one of two ways. The first is in connection with the decision making and decisions of older persons, sometimes with the advice of their family members, to relocate from one residence to another. Several types of residential changes are possible in late life. The young-old population sometimes moves to a low-maintenance leisure- or recreation-oriented setting such as a planned active adult retirement community or simply from a larger owned dwelling to a smaller apartment unit. To cope with a decline in their abilities to carry out everyday activities, another group of older persons will move to the home of an adult child or to planned housing accommodations, such as congregate housing, assisted living facilities, and continuing care retirement communities. Even when older persons do not move from their current residence, environments will change for them in a second set of ways. Their dwellings may become older and fall into disrepair, or the population and land use characteristics of their neighborhoods and communities will change. Because of chronic health problems, older persons are often forced to use their dwellings differently, as when they stop accessing the second floor of their houses because of locomotion difficulties or when they find it difficult to take a shower safely. In response to these impairments, older persons may modify the physical design or architectural features of their dwellings, thus introducing other adaptational challenges for environmental use. Older persons, who find they can no longer drive a car and can only easily access nearby stores and services, may experience a dramatic change in their world view. The residential environment may also change because the interpersonal relationships of the older person begin to disappear: a spouse becomes disabled or dies, close friends leave the community, and children move to another state. The net result is that whether older persons physically relocate or simply experience real or perceived changes in their currently occupied

residential settings, they must continually reassess the desirability and salience of its contents—its parts and their attributes—both in connection with their present and future needs. These evaluations in turn will influence their own sense of well-being, how well they think of themselves, and the types of their adaptive responses (Anderson, 1944; Michelson, 1987; Stokols, 1987).

It is for this reason that it becomes crucial to focus on the temporal aspects of older people's environment and aging relationships. Failing to do so is to treat older persons' transactions with their environments, settings, or situations as merely contextual snapshots or temporally static episodes rather than frames of an ongoing environmental movie. Our insights would be arbitrarily limited to what Lewin (1936) early called the individual's "momentary situation" or what Wapner (1987) referred to as synchronic or cross-sectional (as opposed to diachronic or longitudinal, frame sequence) analyses. Rather, a unified temporal perspective is required that coordinates present-focused orientations (individuals, groups, and physical settings are considered significant because of their ability to satisfy immediate goals and plans), traditional orientations (affective responses are linked to past environments), and futuristic temporal perspectives (focused on prospective people and events; Jacobi & Stokols, 1983).

A focus on how older people differently use, manipulate, or perform tasks in their residential settings will also help explain or predict individual and environmental outcomes. Older residents will either have their needs satisfied or thwarted because of initiated behaviors and actions that tangibly or overtly link them to the contents of their environments. These behaviors and actions will often be very selective and idiosyncratic because older persons will function in distinctive motivational contexts and because they have dissimilar cognitive and physical capacities that will either facilitate or inhibit their activities. These experiences, in turn, are likely to influence subsequent environmental behaviors and attributions of salience to a setting's content (Golant, 1984a). Thus, older residents who occupy the very same environment will often not similarly utilize its contents nor experience the same outcomes from their comings and goings. Older persons will also behaviorally adapt differently to changes in the contents of their residential settings (the temporal perspective just described), and they will not similarly reassess the desirability and functionality of their current actions and behaviors. Altogether, these environmental behavior or activity patterns offer one tangible indicator by which to distinguish the environmental content of a setting that is most relevant to its older persons and likely to evoke their responses (Scheidt & Windley, 1985), what earlier was referred to as beta as opposed to alpha environmental press (Murray, 1938). The net result is that the behaviors and actions of older people will often be predictive of whether they are having their needs met, are positively assessing their setting's qualities, and have a positive self-concept.

Thus, similar and compelling rationales exist to incorporate both temporal and environmental behavior perspectives in our environment and aging theoretical models. It is necessary to understand the complex time and space interactions or interface between persons and their environment, "to account for the central processing by which the external environment is given meaning by the person" (Lawton, 1998, p. 4). These dynamic linkages must be fully explored to explain and predict the fittingness or congruence of older people's residential settings. In one of his last publications, Powell Lawton (1998) expressed disappointment about the "progression of theory development in environment and aging over the past two decades" (p. 2). This paper seeks to address this concern by arguing that the roles played by these temporal and environmental behavior facets present two promising theoretical pathways.

Precedents for Conceptualizing the Temporal Influence of Environments and Older Individuals

Altogether, temporal properties are underdeveloped as constructs in the environmental gerontology theoretical literature (Nahemow, 2000; Windley & Scheidt, 1980). Largely lacking are theoretical models that offer formal propositions as to how time and its attributes are linked to the emotional and adaptational responses of older persons in new or different environments (but see Golant, 1998). This lack of interest is probably explained by some combination of methodological and philosophical factors. Empirically, it is often infeasible to study an older population's past environmental experiences because of cost and time constraints. Philosophically, the most relied on theoretical formulation in environment–aging relationships was inspired by the interactional paradigm (Lawton & Nahemow, 1973). In contrast, temporal inquiries may be thought of as more compatible with the transactional paradigm and its focus on events and holistic phenomena involving the confluence of people, space, and time (Altman & Rogoff, 1987; Rowles & Ravdal, 2002; Rubenstein & Parmelee, 1992). Nonetheless, as the subsequent brief overview emphasizes, important and valuable insights into the role of the temporal dimension can be found in the literatures of both environmental gerontology and the other social and behavioral sciences.

The social psychology and environmental psychology literature offers many theoretical insights into the pervasive role played by time in understanding human experiences perspectives (Helson, 1964; John, 1976; Magnusson, 1981; Magnusson & Torestad, 1992; McGrath, 1988; Russell &

Snodgrass, 1987; Snyder & Cantor, 1998; Stokols, 1987). Developmental psychologists have also argued that the timing of developmental events over a life course is likely to influence how older persons adapt to their changing environments (Baltes, 1978; Bronfenbrenner, 1999). In particular, they have focused on how different cohorts of older persons have experienced life-course trajectories that have powerfully shaped their current views of their worlds (Elder, 1998). Thus, older persons who are living today, yet belong to as many as four different birth cohorts, will deal differently with their current stressful or challenging environmental experiences, because of past personal challenges or crises they confronted at key points in their earlier lives and over specific historical periods (Baltes, Lindenerger, & Staudinger, 1998; Elder, 1998; Wachs, 1999). Environmental gerontology theories have generally not incorporated this line of inquiry, perhaps because most developmental outcomes unfold only after a long time and thus are difficult to identify and measure in most contemporaneous analyses. One important exception, however, is found in the environmental classification efforts of Lawton (1999). He recognized a ''social environment'' construct that encompassed ''social norms, cultural values, social statuses, organizational structures, rules, practices, laws, and other social institutions'' (Lawton, 1999, p. 110).

The environmental gerontology literature has frequently considered the temporal dimension in its treatment of the residential moves by older persons between very different housing and care settings, such as from the conventional single-family home to the institutional environment of the nursing home (Lieberman & Tobin, 1983; Parmelee, 1998). Their authors, however, have been primarily interested in how these moves produce extreme and negative individual outcomes, such as morbidity and mortality rates. Although a strong theoretical basis exists to expect that such residential moves would also negatively influence the self-concept and self-esteem of older persons (Baltes & Baltes, 1990), this is an infrequent focus in most studies by environmental gerontologists (Antonelli, Rubini, & Fassone, 2000; Rowles & Ravdal, 2002; Rubinstein & Parmalee, 1992).

Various conceptual treatments by environmental gerontologists have focused on how older persons associate their often long-occupied places of residence with strong emotional, symbolic, material, and social meanings or involvements. They have frequently examined the place and community attachment, place identity, sense of place and community, and place dependence of older persons (Rowles & Ravdal, 2002). Specific examples have included the ''autobiographical insidedness'' of Rowles (1983), the ''psychoenvironmental histories'' of Howell (1983), the ''attachment to home'' concept of O'Bryant and Wolf (1983), and the ''reminiscence therapy'' of Weisman, Chaudhury, and Moore (2000). It is argued that older persons with these place ties are more likely to feel in control, secure, and have a positive self-identity, self-concept, or self-esteem. This is an understandable treatment of the temporal perspective given that ''place attachment is not a state but a process that continues throughout life'' (Rubeinstein & Parmalee, 1992, p. 143). The common thread linking all these concepts is their recognition that human organisms have extraordinarily powerful and complex cognitive processing abilities (John, 1976). Thus, they have past environmental and life experiences that they can vicariously activate and concretely and abstractly interpret to shape their current subjective environmental experiences and their sense of who they are. These case-study, idiographic, transactional, or phenomenological treatments (Altman & Rogoff, 1987) have elucidated the role played by the temporal dimension, but they have not lead to formal theory construction and the specification and testing of propositions that would systematically increase our knowledge and advance the field. This literature has also predominantly and narrowly focused on the negative outcomes of environmental change, whereupon older persons experience profound psychological losses when their environmental ties are weakened or break (Rowles & Ravdal, 2002).

The ecological theory of aging (Lawton & Nahemow, 1973) is, by far, the most referenced, interpreted, and applied theoretical framework that has examined the ''interplay between individuals and their environments'' (Nahemow, 2000, p. 23). It recognized the central role of adaptation for the study of the ecology of aging; that is, ''to the processes governing the efforts of the aging individual to respond successfully to both endogenous and exogenous changes (needs and demands) occurring *over time*'' (italics added; Scheidt & Windley, 1985, p. 246). It specifically incorporated the ''adaptation level'' construct of Helson (1964), who argued that the human organism adapts to ''external stimuli in such a way that after a period of time, the present stimuli are perceived as neither strong nor weak'' (Nahemow, 2000, p. 23). Nonetheless, the theory's second author acknowledged that the ''issue of time and timing has not been used as much as it could be'' (Nahemow, 2000, p. 37). The model is also relatively silent on how individual differences among the older population might influence adaptational responses, despite the sensitivity of the first author to the role played by individual-level attributes, particularly personality and temperament (Lawton, 1998). Even as an individual's competence level is a central construct in the model, and specifically in its ''environmental docility'' hypothesis, the model also does not clearly specify the role played by an older individual's temporal properties. Thus, when the model speaks of lower and higher competence, it is unclear whether it is referring to a cross-sectional

comparison of older persons at a point in time or to older persons described longitudinally over time. Certainly, most empirical studies measure competence level in the first sense; and most theoretical treatments leave unspecified the effects of an individual's changed competence levels. A recent reformulation of the ecological theory of aging has incorporated a temporal dimension as a means to better understand the significance of specific environmental influences during the life course (Cvitkovich & Wister, 2003).

Going Forward: Theoretical Focus on Three Temporal Factors Relevant to Environment and Aging

Three different types of temporal factors hold particular promise as theoretical and practical influences of how older persons emotionally respond and adapt to their current residential settings: first, the types and salience of their past environmental experiences and their future environmental expectations; second, how older persons differently interpret change and how this assessment affects their self-concept; and third, the temporal properties of their personal or individual attributes.

The Types and Salience of Past Environmental Experiences and Future Environmental Expectations

Older persons in new or different residential settings are unlikely to have experienced similar trajectories of environmental change. This is important because their past environmental experiences and individual outcomes will play a prominent role in how they emotionally respond to—encompassing their dominance, arousal, and pleasure responses (Mehrabian, 1980)—and adapt to their current environmental transactions and their outcomes. This warns against declaring a group of older persons as homogeneous simply because they now report similar individual and environmental outcomes. The reality is that they will have reached their sameness from very different starting points. Older persons who now judge a setting as equally "bad," "unstimulating," and "controlling" may be influenced by very different environmental pasts. Thus, for one individual, the current environment may constitute an improvement; for the other, a disappointment, and a step down, whereas for the third, the judgment of "bad" may constitute an unchanged evaluation from the past (Golant, 1998).

How past environmental experiences influence current setting responses may not be straightforward, however. The historical pasts of individuals may make these persons more or less sensitive to current environmental features, or have increased or decreased their abilities to deal with current stresses (Wachs, 1999). One study of how older people and designers differently judged the typical hazards found in a dwelling emphasized the complexity of interpreting present assessments (Wells & Evans, 1996). The researchers found that the risk of personal injury associated with a variety of architectural features and consumer products (e.g., stoves, hot water, towel racks, toilets, windows, and floors) depended on the previous encounters of older persons and professionals with these items. Those who reported more negative past experiences with particular products also assigned them a higher risk estimate ranking. Designers, for example, had a higher level of injury experience with towel racks, toilets, and floors than did older adults. Thus, previous negative experiences were found to inflate current risk perception. The interpretations were even more complex because it apparently was not necessary for the older respondents themselves to have had the negative experience. Merely knowing someone else who had experienced a problem influenced them. More generally, when the current setting is conceptualized as posing a threat or a risk, many theoretical interpretations are possible regarding how past environmental experiences have contributed to current assessments and behaviors (Gardner & Stern, 1996; Stokols, 1987).

The dangers of a present-oriented perspective are also apparent when an organization's mission is to create a residential facility that fits the needs and abilities of its current occupants. It is possible that management's goals designed to achieve such individual–environment congruence are unrealistically ambitious. After all, many of the facility's occupants may never have previously experienced such optimal living conditions in their earlier settings or past lives, and the psychological processes, individual dispositions, and poor coping skills that prevented such earlier positive outcomes will still be operating. Simply put, some persons have always lived in less than perfect places, will always be difficult to satisfy, or will have profound difficulty adjusting to any setting that deviates from their expectations. Just as it is impossible to psychoanalyze an older person in a single session, so too it is very difficult to create optimal individual–environment fits based on static contemporary cross-sectional analyses of environmental preferences and needs (Golant, 1998). An extended interpretation of Carstensen's selectivity theory (focused on social partners) might also suggest that, over the life course, older persons come to view a smaller set of environmental features as salient to their residential needs (Fredrickson & Carstenen, 1990). Thus, a residential setting may become congruent with its occupants' needs through the manipulation of only a few of its features.

How a setting's older occupants view the future is also likely to influence their current responses. Older persons who anticipate only a short-term stay in

their current setting may be more willing to overlook appraised deficiencies. Such a "temporary" stay might be in response to disabilities or medical episodes that require short-term nursing care and rehabilitation, following which residents expect to attain their prior level of behavioral functioning and return to their previously occupied setting. Alternatively, older persons who expect to be long-time occupants may be less tolerant of their settings' environmental shortcomings because they have low expectations of ever leaving. Finally, older persons who have occupied a residential setting for a long time may have become habituated to its less desirable features because they have given up hope that their surroundings will ever improve, and they feel helpless or apathetic (Peterson, Maier, & Seligman, 1993).

Older Persons' Interpretation of Change and Effects on Their Self-Concept

As emphasized, the preponderance of the environmental gerontology literature has focused on the undesirable aspects of residential change, and this is unquestionably a valid foundation for theoretical inquiry. This is especially true for the large literature focused on the consequences of older people's losing strong and valued attachments with possessions, people, and activities, such as with a long-occupied and familiar setting, long-known friends or neighbors, or a long-owned car (Kalish & Knudtson, 1976; Lieberman & Tobin, 1983; Rowles & Ravdal, 2002). Here the onset of change is often posited as a destabilizing or weakening influence on the individual's self-concept or self-worth. This occurs because these attachments were so integral to the individual's life-space and a source of predictability and control. Consequently, individuals may be forced to question anew their self-worth and "who they really are," and their answers may not be satisfying (Hormuth, 1990). Older individuals whose self-concepts are strongly rooted or anchored to past experiences and behaviors (the proverbial "living in the past") may experience the most difficulties. This is important because even those older people who occupy settings that by most objective standards constitute improved living environments may still experience unfavorable shocks to their self-esteem (Magnusson, 1981).

This can especially happen when an older person occupies a new residential setting in which he or she feels like an unknown entity, a stranger with no history. Because the person's "concept of himself no longer receives automatic reinforcement" (Cumming & Cumming, 1963, p. 48), a new personal identity must be established to gain people's recognition and acceptance. In this process, however, older individuals may be forced to critically reexamine their accomplishments and the value of their lives. This self-scrutiny may be a painful or unpleasant experience and consequently result in the older person's feeling stressed, anxious, and without control over one's life or environment (Rodin, 1986).

The inevitability of these negative outcomes, however, is entirely unclear because the individual life-course theoretical literature is very equivocal as to the desirability of environmental continuity versus change to account for a person's well-being. Propositional arguments are lacking as to the individual or environmental circumstances under which environmental stability or change will be the more salient and beneficial influence on a person's well-being (Kahana & Kahana, 1983; Wachs, 1999).

Although much literature provides evidence for the benefits of aging in place and desirability of residential continuity, there are also many contrary examples linking environmental change with positive outcomes (Lawton, 1998). Theoretically, this would be true for older persons who have anticipated and resolved their inner personal doubts, who believe they have initiated the change, who receive psychological supports from their important significant others, or who believe that their new situation is better than that experienced by most of their age peers (Festinger, 1954). Environmental change may also be a positive experience, if it is interpreted as a pathway toward "personal control and hope for improving one's future in later life" that "allows older persons to plan for a more satisfying future, improve their living situation, and increase person-environment (P-E) fit" (Kahana & Kahana, 1983, p. 206). Oswald, Schilling, Wahl, and Gang (2002) similarly pointed out that a residential relocation is not always stressful if "older people relocate to pursue individual interests and enhance personal development as well as to overcome environmental restrictions or 'environmental press'" (pp. 283–284). Environmental change can also be viewed as a healthy normal adjustment if it is connected with moving from one developmental stage to another (Bronfenbrenner, 1999). This perspective is also consistent with the "proactivity hypothesis" of Lawton (1998), which allows for the possibility that environmental changes are actively sought by older persons as a means to achieve a more congruent setting. So, too, Fried (2000) emphasized that "discontinuities can be gratifying experiences of maturation and fulfillment or more tenuous working through of grave difficulties" (p. 198). Practical illustrations are easy to find. Older persons with more severe physical disabilities often welcome a more structured and supportive environment than they occupied in the past (Lemke & Moos, 1989). Similarly, most would argue that home modifications are designed to eliminate current individual–environment mismatches (Pynoos, Liebig, Overton, & Calvert, 1997). In a rural setting that over time had declined economically, older rural residents were able to take up rewarding leadership positions

(Scheidt & Norris-Baker, 1993). Even the emotionally and symbolically charged strong attachments older people have with their residential settings can be interpreted as pathological and destructive (Fried, 2000).

Conceptualizing Changes in the Individual

To avoid misleading interpretations, theoretical treatments must also incorporate constructs that depict the trajectory of change in the personal attributes of older individuals. The possible pitfalls of not doing so can be illustrated by the way researchers typically conceptualize the older person's behavioral competence (e.g., the presence of activity of daily living limitations). Schaie and Willis (1999) correctly pointed out that "competent behaviors occur when the capabilities of the individual match the environmental demands and resources" (p. 181). What is left unspecified, however, is that a successful "match" will depend not just on the current level of competence of older persons but also on how the capabilities of the older person have recently changed and are likely to change in the future—in what direction, how much, and how quickly? It is unreasonable to assume that individuals, even now performing at the same level of behavioral functioning, will have the same emotional responses to their environments and will behave and cope similarly, even as they are experiencing different trajectories of individual change. Models must distinguish at least three groups of individuals, based on the temporal properties of their behavioral competence levels: (a) older persons with relatively stable functional behaviors that are expected to remain the same in the knowable future (e.g., person with a stable chronic health condition); (b) older persons with only short-term behavioral competence deficiencies whose abilities are expected to improve in the near future (e.g., persons recovering from a heart attack, broken bone, or eye surgery); and (c) older persons with relatively unstable levels of behavioral competence whose abilities are expected to decline steadily (e.g., person with Alzheimer's or Parkinson's disease).

The Need to Conceptualize Environmental Behaviors Along With Environmental Content

Most taxonomic treatments of older people's residential settings consist of a set of attribute dimensions that differentiate its components or parts, that is, its contents. These variously designate an environment's physical, social, natural, and organizational domains, its potential sources of stimulation, and its facilitative or constraining qualities (Anderson, 1944). Examples of such typologies include Lawton and Nahemow's (1973) ecological system, Kahana's (1982) environmental congruence dimensions, Regnier, Hamilton, and Yatabe's (1995) environmental design classification of ideal assisted living facilities, and Moos and Lemke's (1994) Multiphasic Environmental Assessment Procedure. Although they include different sets of components and attributes, they have in common their conceptualization of the content of an objectively or subjectively conceived environment.

In contrast, the theoretical treatments by gerontologists studying environmental influences rarely conceptualize comparable typologies of the environmental behaviors or activities of older persons, referring to their externally observable or overt behaviors (Lawton, 1985; but see, however, Golant, 1984a, 1984b). They rarely include a comprehensive and systematic construction of the alternative ways that older people use, manipulate, or perform tasks in their settings. They fail to specify a set of integrated propositions that argue why and to what extent some activities are more salient than others for explaining or predicting the well-being or successful adjustment of individuals in their settings (Lawton, 1985). This theoretical failing is significant because it is unreasonable to assume that a setting's residents will conduct the same types of activities, similarly interpret their significance, and respond the same to their consequences. If, for example, some nursing home residents more than others display poor way-finding skills or underutilize the recreationally designated common spaces, their distinctive activity patterns will likewise differently influence their quality of life (Golant, 1984a).

This lack of theoretical development is surprising for at least three reasons. First, as phenomena that researchers can objectively and scientifically measure and that they can treat as either antecedents or consequences of older people's transactions with their environments, activities are constructs that are compatible with an interactionalist world view. Second, such environmental activities are also central to the perspective of transactionalists, such as Wapner (1987), who has argued that it is impossible to separate people's actions or behaviors from their settings or spatial contexts. Third, the absence of the formulation of activity constructs and their relationship effects is at odds with the types of applied research questions of interest to professionals investigating the desirability of architectural and interior design features in the residential settings occupied by older people (Gitlin et al., 2002; Hoglund & Ledewitz, 1999; Wahl, 2001).

The types of constructs that are relevant to environmental behavior classifications as opposed to environmental content typologies can be illustrated with several examples. It is not just the safety or friendliness of a neighborhood that is most valued, but rather the regular and predictable morning walk in the neighborhood; it is not just the presence of grab bars in the bathroom that is important, but the ability and confidence to shower safely; it is not just

a friendship that is supportive of expressive or instrumental needs, but the regular twice-weekly visit with a friend; and it is not just the staff–resident ratio that is significant to the residents in an assisted living facility, but rather the timeliness of staff–resident transactions and whether residents' specific personal needs are met as a result of staff actions.

The older person's "control center" (as described by Powell Lawton) offers a specific example (Gitlin, 2000). Its environmental content typically includes comfortable seating, a telephone, emergency communication device, grooming items, TV remote, cane, and a notepad that are spatially arranged in a manner appropriate to compensate for a frail older person's limited mobility. Although depicting its content is obviously important, the essence of this concept has to do less with its form than with its functional properties. For older persons the utility of a control center depends on whether it facilitates a collection of ongoing behaviors, actions, or manipulations that allow them to complete self-care tasks, enjoy their leisure time, maximize their stimulation, and maintain communications with both family and professional caregivers (Rubenstein, 1989). It is the affording of these behaviors by older persons, even as they are afflicted with various health problems and physical disabilities, that makes the control center so valuable.

Home modification research might be better informed by focusing on environmental behavior. The introduction of home modifications obviously requires the changing of a setting's environmental content to make it more compatible with older persons who have physical limitations (Pynoos et al., 1997). One can question, however, whether an elaborate environmental typology of the components and attributes of a residence that are amenable to home modifications is the best way to theorize about the effects of this type of environmental change. Rather, the most relevant questions may concern the environmental behaviors or activities (and their attributes) that are facilitated or prevented as a result of these modifications, such as caregiver assistance, the performance of tasks, the increased and safer use of a residential setting, and the reduction of destructive behaviors, such as home accidents (Gitlin et al., 2002).

The literature in ecological and environmental psychology contains several theoretical precedents for distinguishing and classifying such environmental behaviors and relating them to emotional responses and successful adjustment. One highly developed framework is the conceptualization of the various types and units of "standing patterns of behavior" in the behavior setting theory of Barker (1968). Here is found a rich and detailed set of constructs describing at various levels of detail a person's everyday behavioral transactions with his or her environment (Norris-Baker, 1998). Importantly, we do not have to adopt Barker's somewhat cumbersome "behavior setting" construct to benefit from his environmental behavior indices. A second useful construct by which to identify an older person's environmental transactions is the "behavior circuits" of Perin (1970, pp. 77–78). These refer to "the round of behaviors people engage in order to accomplish each of their purposes, from start to finish ... they denote both the movement and the completion integral to tasks, errands, recreation, work, visiting, and so on." Examples of behavior circuits include the daily walking of a pet in the neighborhood, the walk from bedroom to bathroom, the attending of a meal, the daily walk in the mall, the regular viewing of a favorite TV soap opera in one's favorite chair, the habitual drink before dinner, the visit to the doctor, the gathering and pursuits of a hobby group, the attendance of Sunday religious services, and the Saturday visit with a child.

It will also be useful to distinguish environmental activity constructs by other properties that are likely to influence individual outcomes. These would include the specification of whether activities are obligatory or discretionary, planned or unplanned, and how environmental incentives or constraints lead to the adoption or rejection of particular activities. These conceptualizations would also profitably distinguish the subjective significance or salience of a person's activities.

Whatever categories are used to conceptualize an older person's environmental behaviors or activities, the constructs will be most useful if they are further distinguished by both their spatial and temporal properties. Activities always occur in some location and in some measure of time and in turn require a time allocation by their users (Golant, 1984a; McGrath, 1988; Michelson, 1987). They will vary by their durations, regularity, and frequency. Individuals who occupy a new or modify an existing setting will inevitably change (add, drop, or modify) their everyday routines or activities. The amount of time allocated to different activities is an especially sensitive indicator of an older person's recognition of cognitive deficits and declining health status (Albert, 2000).

Conclusion

The temporal context of older people's lives and environments is central to any complete understanding of how a current residential setting influences its occupants' emotional responses, behaviors, successful adaptations, and overall quality of life. A significant body of literature in the social and behavioral sciences has clearly articulated the importance of the temporal perspective. Thus, gerontologists must overcome any philosophical and methodological barriers that have retarded the formulation of temporal constructs in their environment and aging models.

Environmental behaviors or activities are also largely absent as theoretical constructs. Even as architects, environmental designers, and occupational therapists frequently investigate how and why older people use their settings differently, current theoretical formulations in environmental gerontology fail to offer a coherent and comprehensive set of propositions regarding these relationships and how they impinge on individual or environmental outcomes. Thus, theoretical models are absent that can drive these inquiries or can serve as an organizational framework to synthesize the considerable and increasing number of empirical findings.

Architects, environmental designers, and human service professionals are today valiantly striving to help older people remain independent longer and to help them compensate for their physical and cognitive declines. Their overarching goal is to avoid creating shelter and care settings that unnecessarily rob seniors of their independence and positive self-concept or fail to treat them as ''whole persons'' (Golant, 1984b). This paper offers the hope that a greater theoretical sensitivity to time and behavior will in a small way help these professionals realize their goal. The appendix at the end of this paper offers a set of practical environmental applications of addressing temporal and environmental activity theoretical pathways. Taken at face value, they counsel family and professional caregivers and housing administrators as to the practical advantages of focusing on temporal and environmental activity influences. They can also be interpreted as propositions that require further testing and verification. In both instances, they argue for the need to begin constructing a set of propositions or formal relationships that offer a cumulative and generalized set of insights as how to ensure that older people are occupying settings appropriate for their abilities and lifestyles (Weisman et al., 2000).

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Appendix

Practical Environmental Applications of Temporal and Environmental Behavior Theoretical Pathways

- Older persons will emotionally respond and adapt differently to changes in their residential settings because they have different personalities, temperaments, and idiosyncratic environmental histories that together will result in their applying very different standards of quality when judging the desirability of their settings.
- The environmental pasts of older persons that influence how they now emotionally respond and adapt to their current residential setting may not have been experienced firsthand, but rather reflect earlier received information from trusted family, friends, or neighbors.
- Assessments of the appropriateness of a newly occupied residential setting often are focused on maximizing the current "fit" between its features and its older occupants' lifestyles and functional status. It is

arguably as or more important to focus on how to minimize the undesirable environmental changes that older residents confront in their new or modified residential settings.

- Residential environmental features that are very different from those experienced in previous settings (implying environmental discontinuity) may still produce beneficial personal outcomes if they involve the introduction of more supportive social or physical resources, if they result in a more therapeutically challenging environment, if they have resulted in the removal of earlier individual–environment mismatches, or if they afford older persons the opportunities to pursue desired activities more consistent with their changed abilities.
- Understanding the older person's environmental history may help the professional caregiver or family member initiate more appropriate helping strategies.
- Over time, older persons may experience an increase in behavioral and cognitive competence, because they have psychologically adjusted to a new residential setting or because their physical health has improved. Thus, they may be positively disposed to new and more challenging environmental contexts.
- Even the most therapeutically beneficial environmental changes may be observed to yield undesirable personal outcomes, if they are evaluated too soon after their introduction in a setting, thus preventing the older occupants the time to adapt successfully to their presence.
- Emotional and adaptive responses of older persons to a new or changed residential setting will be influenced by whether they expect their future health status and functional abilities to decline, improve, or remain largely unchanged.
- Emotional and adaptive responses of older persons to a new or changed residential setting will depend on the length of time they expect to remain in their current housing arrangement.
- "Place-therapy" or helping older persons psychologically adapt to a residential transition may minimize undesirable individual outcomes. Specifically, tapping into their memories of past places may help them maintain a sense of continuity with their past identities. Such a therapeutic response should be viewed not only as a means to replace losses, but also as a means to emphasize the benefits or gains of a residential move.
- The introduction of environmental traces (as exemplified by earlier long-held material possessions, such as photographs, knickknacks, and other artifacts) into a new or different residential setting, or even merely talking about them, may help older persons remember and enjoy earlier residential and life experiences and in turn help them adapt to their new environs.
- To minimize maladaptive behaviors and poor emotional outcomes that result from a residential relocation or a change in the physical design or attributes of the current dwelling, slowly introduced and small incremental changes are preferable to quickly introduced and large changes.
- The home environment both concretely and symbolically may constitute the most reliable and desirable context in which older persons can reestablish some level of sameness in their daily lives following a personal health or social trauma that disrupts their lives.
- Given the importance of environmental continuity and its links to a positive self-concept for many vulnerable older persons, there is a good rationale for keeping the home "as it always has been." Thus, in the conventional home, a caregiver might want to conceal objects of care such as a portable commode, medications, mobility aids, and other special equipment until needed.
- Although many income and organizational (e.g., lack of funding, poor professional assessments, or lack of reliable repair personnel) factors explain why physically impaired older persons do not undertake home modifications, their reluctance to modify their dwellings may simply reflect their avoidance of behaviors that would violate the treasured memories and continuity of their past lives.
- A newly occupied residential environment should contain opportunities for older persons to pursue salient and enjoyable behavior circuits that they conducted in earlier residential settings.
- Dissatisfaction with a new residential setting following a move may be minimized if older persons are allowed to occasionally visit their previously occupied residential setting (e.g., an apartment building or a neighborhood).
- When the desirability of preventive occupational therapy interventions that are designed to make positive changes in the health-relevant behaviors of older persons are considered, activities most likely to succeed are those that are most valued by them and consistent with their earlier pattern of behavior circuits.
- Improvements in the behavioral functioning of older persons will often justify the introduction of new and more challenging activities.
- Changes in the types and frequency of environmental activities and the time spent on them (e.g., closing off an upstairs room, arranging for someone to go grocery shopping, walking only in the company of a trusted friend, having increased difficulties handling financial affairs) by older persons will often constitute the clearest signals that they feel more vulnerable or are having difficulty adapting to their physical or cognitive impairments.
- Highly personal "control centers" offer a way that older persons can more effectively and safely manage everyday self-care and homemaking tasks that require completion in their residential settings.
- Long-time practiced behavior circuits may be especially salient to older persons. Thus, family and professional caregivers should carefully consider the

pros (e.g., compensating for personal frailty) and cons (e.g., undesirable emotional responses) of introducing changes in the residential setting that prevent, hinder, or substantially modify their implementation. At the very least, older persons should be offered other pathways to complete these activities. For example, the introduction of deadbolt locks designed to prevent wandering can be compensated for by the caregiver's taking the older person on regularly scheduled walks outside the dwelling.