The terms institution and home were hypothesized to represent oppositional polarities in evaluating housing based on a preliminary study of 10 residential settings, 4 of which housed developmentally disabled adults. The hypothesis seemed to be substantiated by initial analysis of data from an investigation of 29 examples of housing from a Midwestern United States city (housing here broadly defined, representing a range from hospital to single family residence). However, analysis of additional data which compares the perceptions of the settings (1.) to architectural variables reveals that although home is a powerful and unified cultural category, the concept institution, while operating in distinction to home, is not as powerful and is much broader perceptually and in terms of its physical definition.

The findings of the study also have bearing on how people categorize housing. The work of Rosch and others (2.) hypothesizes the existence of basic categories: "Categorizations which humans make of the concrete world are not arbitrary but highly determined. In taxonomies of concrete objects, there is one level of abstraction at which the most basic category cuts are made. Basic categories are those which carry the most information, possess the highest category cue validity, and are, thus the most differentiated form one another." (3.) The work presented here suggests that particular building types and room types are basic categories, whereas building type, room type and the paired concepts institution and home function as superordinate categories.

This work represents the metamorphosis of understanding that takes place when a basic assumption is challenged in a variety of ways. The first, most obvious interpretations become transformed as more subtle aspects of meaning are revealed.

1. BACKGROUND

The issue of institutional versus noninstitutional housing while at first limited to stigmatized populations, can now be seen to have application in all kinds of settings from dormitories to multi-family dwellings. The work discussed here began as a preliminary investigation of the architectural implications of deinstitutionalization or normalization (4.) in 10 residential settings (four residences for disabled adults, one hospital, one dormitory, two walk-up apartment buildings and two single family dwellings). This study which documented mainstream housing and housing for disabled people resulted in the development of design principles to avoid institutional character based on the opposition implied by normalization theory, that of a polar relationship between institution and home. These principles were articulated in the form of illustrations, annotations and a checklist of 236 items (5.). When thirty liberal arts students evaluated slides of the 10 documented housing settings as institution-like or home-like using a 5-point semantic differential test(6.), the mean evaluations of the settings fell along a continuum between the poles institution-like and home-like. Ninety percent of the paired drawn representations of the two poles were evaluated as clearly opposite (7.).
Following this preliminary work, a descriptive study was made of 29 settings that included representatives of 11 housing types: hospital, nursing home, dormitory, mid-rise, group home, walk-up apartment, single family dwelling and the overlapping category public housing. The settings were documented in a variety of media including photographic image and the checklist from the earlier investigation.

The photographic images from the descriptive study were used in several investigations involving a self-selected group of liberal arts students from an introductory psychology class. The first investigation paralleled the earlier semantic differential study in that students were asked to rate slide images of the settings along a 5-point scale between the terms institution-like and home-like. The settings' mean ratings once again fell on a continuum, with hospital and nursing homes representing one pole and single family dwellings the other. (8.) thus tending to support the assumptions of polarity and continuum.

In a second study involving photographs, sorting techniques were used (9.), beginning with a free sort, followed by a sort into oppositional categories. In the sort into oppositional categories the terms home or home-like are the most commonly applied category. These are used by 9 of 34 respondents to represent one opposition. Institution, in contrast, is only applied three times alongside hospital (used twice) and business or work place (used 4 times) (10 respondents used various conceptual categories unrelated to institution and home, like inside/outside, 15 used related categories like public/private, and 11 used categories linked to either or both institution and home). This suggests that home is a commonly used place category, but that institution is not. The similar application of hospital, business and workplace, indicates that, unlike home, institution stands for more than one building type and may be oppositional to home, not in the sense of representing a clear place category, but in the sense of being not home or nonresidential (10.).

<table>
<thead>
<tr>
<th>Oppositional Category Used</th>
<th>Number using word &quot;house&quot; or &quot;home&quot;</th>
<th>Number I-H Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home, House/Non-Home</td>
<td>5 (5)</td>
<td>5</td>
</tr>
<tr>
<td>Inside/Outside</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Private/Public</td>
<td>4 (1)</td>
<td>4</td>
</tr>
<tr>
<td>Personal/Impersonal</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>New-Old</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Institutions/Homes</td>
<td>3 (2)</td>
<td>3</td>
</tr>
<tr>
<td>Places to Live/Nonresidential</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Hospital/Nonhospital</td>
<td>2 (1)</td>
<td>2</td>
</tr>
<tr>
<td>Single Person or Family/Many People or Families</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Single-Passivity/More than One Active</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Desirable/Undesirable</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>34 (9)</td>
<td>34</td>
</tr>
</tbody>
</table>

Illustration 1

Sort of Images of Housing into Oppositional Categories: Category Names Attributed by Participants

Cluster analysis of the architectural characteristics of living rooms (see later discussion) supports this same conclusion. While the single family houses were found to be strongly related to each other, other settings showed less strong relationships to each other, with the settings perceived as more institutional showing increasingly weak relations to each other.
2. THE SORT STUDY (11.)

While the conclusions drawn from this study must be seen as somewhat speculative, because they are based on responses of 34 college students at a university in the Midwestern United States, the results of the study were striking. When the students were asked to sort 34 photographs of residential buildings (9 interiors and 25 exteriors) into groups of their own selection, and to name the groups, several ways of thinking about buildings emerged. The initial researchers on this project (12.), who were from architecture assumed that the dominant mode of thinking about these places would be in terms of building type. The effect of the predominance of interior slides on the ways the slides would be grouped was, therefore, a surprise. While not all of the participants developed "pure" categories, the ways that the students arranged the slides was not predominantly by building type for the most part, as the researchers had anticipated, but seem to fall into five approaches which are illustrated below with student examples:

1. Categorization by building type (student 104);
2. Categorization by room type (student 106);
3. Categorization by room and building type (student 110);
4. Categorization by both buildings/rooms and public place/private residential (student 128);
5. Categorization by Qualities, Activities and/or Space Features (student 134).

---

Sample Lists of Participant's Categories

<table>
<thead>
<tr>
<th>By Bldg</th>
<th>By Room &amp; Bldg</th>
<th>By Room</th>
<th>By Bldg/Rm &amp; Public Place</th>
<th>By Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apartments</td>
<td>104</td>
<td>110</td>
<td>128</td>
<td>134</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
<td>106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settings</td>
<td></td>
<td></td>
<td>Nonresidential Bldgs</td>
<td>Corridor</td>
</tr>
<tr>
<td>Hotel/Restaurant</td>
<td></td>
<td></td>
<td>Apts Bldgs</td>
<td>Porcelain</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td>Bathrooms</td>
<td>Relaxation</td>
</tr>
<tr>
<td>Home</td>
<td></td>
<td></td>
<td>Hospital</td>
<td>Lay Your Head</td>
</tr>
<tr>
<td>Small Business</td>
<td></td>
<td></td>
<td>Bedrooms</td>
<td>Creations</td>
</tr>
<tr>
<td>College Dorm</td>
<td></td>
<td></td>
<td>Hallways</td>
<td>Shelter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kitchen</td>
<td>Sick &amp; Disabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sitting/Waiting Rms</td>
<td>Dining</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Waiting</td>
</tr>
</tbody>
</table>

Illustration 2

Photos of Housing:

Examples of Participants' Sorted Categories and Category names

(Interior and Exterior Images)

---

2.1 Sort by Room Type

The largest group of students, 13, put the images into groups primarily by room type with the remaining images grouped either into one large category (usually called "buildings", but also called "outides"," structures"), or into two groups (one group was given names like: "houses", "residences", "dwellings for a few people", and the other group, more ambiguously: "institutional", "businesses", "nonresidential buildings", "many-similar-room buildings") (see illustration 2, example 106).
Perhaps not surprising, in this method of categorizing, there was almost complete agreement about which images were categorized in terms of interior places and which in terms of exteriors. Although the room names given were not completely consistent. There was general agreement about bedrooms (although in 9 instances the bedrooms category excluded hospital rooms and/or dormitory rooms), and almost universal agreement about bathrooms and hallways. The category kitchen was sometimes listed jointly with dining or eating, subsuming the category others called "dining room". Dining room was a separate category in 12 cases, twice further differentiated into public versus home dining. Living room as a category was sometimes differentiated from waiting rooms or lobbies, and sometimes included them. When the names "lounge" or "sitting room" were used they generally encompassed living and waiting rooms.

The room types were fairly clearly delineated, then, except that in 9 cases overall, people made an additional distinction between the residential and public rooms of a certain type (e.g. "bedroom of a public place" and "single home bedroom") or created another category (called "hospital," "medical," "public facilities" or "institutional"). These distinctions tend to support the hypothesis that people distinguish between what we have called institution and what we have called home in interior spaces. Also, a few people used details to identify places, alongside room names (beds were used four times, twice instead of bedroom, tables were used by three participants to describe eating areas, and chairs was used once, linked to what others called waiting rooms), suggesting that items of furniture may cue space categories.

This method of sorting by room indicates that rooms types are basic categories of space. There was general consistency in the way that the room images were categorized, and general agreement about room names. The 7 most agreed upon room names seem to be "bedroom," "bathroom" "hallway," "kitchen," "dining room," "waiting room," and "living room.

2.2 Sort by Building Type

For the 7 instances of categorizing the photographs by building type (see illustration 2, example 104), participants placed all of the photographs exclusively into the building type categories. While the people who used this system had fewer categories than those using room type (median of 6 versus 8 for room type), and all of the slides fit into all of the categories, there was less agreement both on the category names, and on the association of images with building type.

The 4 most commonly named categories were: "houses" or "homes", "apartments" (although several kinds were often listed such as "old" and "new", "low value" and "rich", "low income" and "condo"), "dormitories", and "hospitals". In 4 cases another category was also listed ("small businesses", "clubs or organizations", "frat houses", "group homes"). Even though participants generally agreed about the identity of places, in seven examples the attributed identity was different from the actual building type. From exterior photographs, for instance a group home was not able to be identified as a building type, except by one person, but it was identified as "hotel", "club", "sorority", "institution", all atypical categories. A rooming house generated a similar variety of housing types. One hospital exterior was uniformly identified as hospital, but the other was thought to be an "apartment building" or "institution". The building types which were not correctly identified based on the room images, were all fairly ambiguous, a bedroom in a group home, a kitchen in a dormitory lounge, a bedroom in a midrise apartment building, two halls, one in a rooming house, and one in a dormitory.
The identification of interior photographs with a particular building type was far more variable than their identification with room type. For the 26 images of interior spaces, those categorizing them by building type had better than 50% agreement about the building type represented by 21 of the images (4 out of 7), but this contrasts with 90% agreement for 19 of the 26 images when they were categorized by room type. Building type then seems to also be a basic category for environments, and one that may subsume room type, but when applied to interiors, it is more ambiguous than room type.

The common names for building type in housing seem to be "hospital," "dormitory," "house" or "home," and "apartment building." Other names used more than once as categories include: "hotel" or "restaurant" (2 cases), "business" (3 cases), "institution" (3 cases), "highrise" (2 cases). "Group home" was used by only one participant, although it was implied by another in the category "special housing for a certain group" containing only the exterior slide of the group home.

2.3 Sort by Room and Building Type

Those 8 participants who combined room type and building type categories (as in Illustration 2 example 110) had the same median number of categories as those 8 using room type exclusively, and thus tended to use slightly fewer room type categories, categories identical to those listed above, but with living room tending to subsume sitting room. The building categories used here were less consistent, and more generalized since most used 3 categories for buildings. The existence of both building type and room type categories in the same sorting task, suggests that these types of places are understood as being fundamentally different from each other. Both types of categories are basic. This is reinforced by the catch-all category used by those categorizing by room type, of "buildings" or "outsides". Building type thus seems to be a basic category for building exteriors, whereas room type seems to be a basic type for room interiors.

2.4 Sort by Room, Building and Public/Private

The fourth type of categorization, exhibited by only 2 participants, and in its pure form only by one (see Illustration 2 example 128), separates two overlapping categories, and reveals the dilemma faced by the people categorizing the images. This categorization demonstrates that two distinct superordinate category sets are at play, buildings/rooms, and public place/private residential setting. Once the dilemma is understood, we can see that it was implied by many of the other attempts at categorization.

Often, one or more of the four individual superordinate categories were stressed, and some remainder was required to include all of the slides. For instance, students who classify using room space types as the dominant superordinate category, frequently differentiated between room types on the basis of the public place/private residential category (see Illustration 3, examples 106 and 117 where "Living Room" is differentiated from "Waiting Room"). In other cases the buildings were subdivided into public place/private residential groups (see Illustration 3 examples 119 and 131). And in some instances the overlapping categories made it difficult to sort with consistency (Illustration 3, Example 111). But the problem of the overlapping categories reaches its ultimate in the case of 119 (Illustration 3) where the concern for consistent categorization led to the creation of 12 categories. While in one sense this seems a simple case of classifying using both room types and building types, on the other hand a further the differentiation made between "single home" and "public place" is not strictly along the lines of building type. The 4 categories used in the pure case (example 128, Illustration 2) make this point clearly: "nonresidential buildings," "buildings people live in," "rooms in residences," "rooms in nonresidences."
2.5 Sort by Other Concepts

The fifth set of participants used a variety of ways to sort the photographs. The simplest approach was one in which all slides fell into three categories: window, no window and outside. The other three participants each used nine categories. In the first 9-category case there were two overarching categories, passivity and activity, within which fell the nine subcategories, which were a mixture of physical attributes (e.g. "exterior openness," "cornered"), and activities ("still waiting," "conversation"). In the second case the categories were qualitative ("sunshine," "lived-in look," "desertion," "togetherness"). The third 9-category case (see example 5), involved a mixture of activities ("dining," "waiting"), physical characteristics ("porcelain"), and implied occupants ("sick and disabled"). The activities a space is used for is a significant part of the association with a room or building. While these activities are implied by the room type and building type name, and activity names were identified as room types by those in the first group, it is surprising that none of the students used activity as a consistent way to categorize these images. Qualities of buildings are also an important aspect of them which can be consistently used to classify them, as was done by the individual who used active and passive. Again it is surprising that this was done so infrequently. This fifth group of students shows that response to housing is not simply based on culturally derived categories, but also entails a significant element of personal response.

2.6 Discussion of Sort Findings

It is significant that of the 34 students who participated in the sorting task, 31 used predominantly room type and/or building type to categorize the photographs, and only 4 used another approach. Building types and room types are not the only categories for classifying buildings, but they are powerful and consistent cultural categories (14). The categories attributed most frequently to the groups of slides are room and building names. Because of the inclusion of both building interiors and building exteriors in the photographs sorted, we find that there is usually an attempt to place slides into one or the other or both of the types of spaces. Thus the categories room and building can be understood to be superordinate to basic types themselves (being the named rooms and buildings).
The two superordinate categories building and room may be applied as parallel, or building may be applied as superordinate to rooms when rooms are understood to be contained by buildings. When categorizing the images in terms of room, the parallel nature of the categories is implied by the need to lump the remainder, exterior images, into a group with a name such as "Buildings" or "Outside" (see illustration 2 examples 106, and 111 respectively). In contrast, the 7 students who used building type as the predominate category mode were able to subsume all of the room slides into the building categories. Thus, while individual building and room types can be seen as basic categories, building type and room type can be understood as superordinate categories, with building sometimes being superordinate to room.

The frequent subdivision of rooms and buildings into groups representing public/nonresidential and private/residential (10 cases), or what we are here calling institutional and homelike and the intermittent mention of the term "institutional" (4 cases) to contrast with home suggests that this is also a category set, significant, and overlapping with, although less powerful than building and room type. Furthermore, we hypothesize that if interior or exterior slides had been sorted exclusively this second superordinate category might have emerged as more powerful, just as if the images had been exclusively of homelike or institutional character, the building and room type categories would have emerged more clearly.

3. ARCHITECTURAL CHARACTERISTICS: PATTERNS OF VARIABLES (15.)

Another part of this research investigates the physical form of the environments. An architectural checklist, developed to describe the difference between institutions and homes, was one of the variety of descriptive methods used to document the 29 housing settings. This list is made up of 236 architectural variables hypothesized to distinguish settings perceived as homelike settings from those perceived to be institutional, of which 21 describe living rooms (using descriptions of room size, material of floor ceiling and wall, furniture, safety equipment, etc.). The checklist measures for 23 of the living rooms (those used in the semantic differential slide study) were tested in a cluster analysis using the nearest neighbor approach to discover what kinds of relationships existed between the individual buildings relative to these checklist items (see Illustration 4).

The resultant cluster analysis (see illustration 4) reveals a pattern of strong linkage between single family dwellings, successively less strong links between other forms of housing like apartments, and very weak links among the settings perceived as most institutional: hospitals, nursing homes and dormitories. That the homes are clearly grouped together supports the hypothesis of a distinct physical category "home", and further, suggests that the checklist is able to measure qualities associated with home. The increasingly strong distance between the more institutional buildings and the home group indicates that there is a physical difference between institution and home.

However, the hypothesis of two opposite polarities implied by all of the perceptual studies done to date is not supported by the analysis of the checklist data. There is evidence that the concept "institution" is understood, and if people are able to identify places as institutional, it is in some sense a category. If it can be called a category it seems from these data to be a category only in reference to home, to not being home, rather than on its own terms. In relation to physical features, as measured by the checklist, it does not have the clear centrality that seems to exist for the category home.
Common sense tells us that institutional settings are varied. Dormitories are as distinctly different from hospitals as they are from houses, so it stands to reason that as a group institutional residences would be very different. However, in terms of physical features, one would then expect to find that the different building types would be highly correlated with each other, which is not the case, at least for the living rooms studied. This suggests that either living rooms in these types of settings may vary greatly, perhaps not along the lines of the type of institution (and in each institution there are several types of rooms here called living rooms- e.g. lobbies, floor lounges- that have not been distinguished in this research), or that the checklist instrument is not constructed so as to be able to capture the distinctions that exist between living rooms in different types of buildings. The great distance between the most homelike building types and the least homelike building types tends to support the idea of physical differences between the most institutional and the most homelike buildings, although the nature of that difference suggests that the concept institutional, at least relative to the living rooms studied, is not unified in terms of physical characteristics.
4. CONCLUSIONS

The process of exploring different kinds of housing settings, both in terms of the way that they are understood, and in relation to the architectural forms that they take, has led to several discoveries.

The polar relationship hypothesized between institution and home, while tending to be supported by the initial and subsequent semantic differential studies, was not borne out by other investigations. Although the ideas associated with the terms institution and home were applied as if they were opposites, the opposition did not seem to be one of two poles, rather it seems to be an opposition of distinction, the distinction being that of home and not home. The studies of the living room settings suggest that the form variations of home settings are much smaller than those of institutional settings, which further supports the argument that there is a difference of distinction rather than polarity.

The free sort study reaffirms the importance of context in studying any kind of categorization. The accidental combination of interior and exterior images of housing settings raised different questions than originally intended by the researchers, exposing competing cultural categories for housing settings as well as the complexity inherent in grouping items when competing cultural categories exist.

The free sort findings additionally suggest that when scenes of interiors and exteriors of housing are are sorted, particular building types and particular room types function as Rosch et al's basic categories, and that building type and room type are themselves superordinate categories. Insofar as home and institution are categories parallel to each other, they are found to be superordinate to particular building and room types, and therefore at the same structural level as building type and room type. Thus particular scenes of buildings types and room types can be either categorized into rooms and buildings or can be categorized into groups representing the ideas here called home and institution, but perhaps more accurately named home and not home.

Finally, the power of the term home, versus any other term attributed to the images by participants, was made evident in both sort studies. Its potency seems to derive from the consonance between its identity as a clear formal category and its action as a superordinate qualitative category. Institution, while not in a relation of polarity to home, nonetheless seems to operate as a superordinate qualitative category, functioning to represent what is outside the boundary of home, standing for that which is not home. Since the concept institution subsumes not one narrowly defined building type, but a variety of physical form types, its formal characteristics are not clear, and subsequently, its perceptual definition is also less clear.

Notes

1. Perception is here defined broadly to include both the reception of sensory information and cognition.
3. Ibid, p382.
Institute on Mental Retardation.


10. This raises the question of the extent to which a category must actually be coherent, and whether institution can be called a "category" if its coherence exists in terms of what it is not. This also raises questions, by implication, of the nature of public territory as it is defined in our culture in relation to private territory. At least in the United States, public territory seems to be defined, not in the sense of existing as community space, but rather as that area which is not private.

11. The sort study, one part of the project "Perception of Housing Form," funded by the University of Minnesota Graduate School and the Institutes for Disabilities Studies (Robinson, 1988b, op. cit.), is a further elaboration of data collected in "Architectural Form: Empirical Description," a Project jointly funded by the National Endowment for the Arts and the University of Minnesota Institute for Technology, and School of Architecture and Landscape Architecture (Robinson, J. W. (1986) "Exploring the Ordinary: Institution and Home in a Midwestern City," Project Report of the National Endowment for the Arts.


14. The findings of Tversky and Hemenway (1983, op. cit.) indicate that superordinate categories for environmental scenes are room type, building type as well as landscape type see Table 3 and discussion pp136-140.

15. Based on the data collected in earlier projects, this analysis is part of the project "Architectural Cues for Institution and Home" funded by the American Institute of Architects Health Facilities Committee, in which John Klemm has played a significant role.