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## Student Perceptions of Off-campus Living Spaces

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# **STUDENT PERCEPTIONS OF OFF-CAMPUS LIVING SPACES**

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## **INTRODUCTION**

There has been a substantial amount of research completed on the factors that influence college students and their success. Success, in this context, is often defined as adjustment, GPA, satisfaction, well-being, etc. The primary purpose of these studies is to identify elements that can help college students achieve success within the college environment and have an ability to transfer this success to life.

One of the least explored areas is that of the influence of the living space and its associated environments upon college students. More person-environment research has focused upon on-campus than off-campus environments. Even this research however tends to focus on particular aspects of an environment, and even fewer studies have explored the student-environment relationship from a broad or holistic perspective.

College students often spend more time in their living space than in the classroom. The living space is also the primary environment where students are learning to adjust to life, studying, relating, etc. It is within this space that much learning and adjustment to life away from home takes place especially among college freshmen and sophomores in dormitory spaces within colleges (e.g. Educational Facilities Laboratories, 1972, pp. 12-13; Kaya, 2003). These two years, during the freshman and sophomore years, often lay the foundation for success in the junior and senior year, and often later life.

In many of the institutional spaces where college students live, the key factor of the design has been cost. Many of these spaces often are very institutional and repetitive. Studies are needed to identify elements in these living spaces that help students achieve greater success in college and life. Many times, these environmental elements

are very subtle, and individuals as well as those who have responsibility for these college living spaces do not understand how these environments are influencing the students (5, 12). This is a latent factor that has been often overlooked in much of the research as well as the design process by planners and architects (3). Often, these environments work through attitudinal, psychological, and sociological processes (51, 53) and set the tone for the student's day to day life.

Often the pattern for the development of students is that they live in college space especially during the freshman and sophomore years and during the junior and senior years they live in off-campus spaces that they have chosen. During these junior and senior years, they choose a variety and range of spaces. It is in the studying of the junior and senior choices that we begin to understand the spaces and how they influence individuals. This type of information will help architects and planners better design space because they will understand the choices of maturing college students and the elements that influence them.

There are two encompassing approaches to research that can give an indication about the design and planning of living space for college students. The first approach focuses on the specific *physical elements* in a space and the measured effects of those elements. The second approach uses the individual as the reference point, and focuses on *the interactions between the person and the environment*.

### **Physical elements approach: light, space, nature, color**

The first approach focuses on measured responses to physical elements that exist in a space. These elements exist outside the in-

dividual, and are design elements that are directly or indirectly related to success. Often, the individual does not have control over these design elements after the initial choice is made to live in a certain space. Of the physical elements, some of the more important ones identified by research are qualities of *light, amount of space, nature, and color*. Research that highlights these elements can be found in Table 1.

Certain qualities of light have been shown to alter subjective impressions (15), mood (29, 30, 31), cognitive responses (32), preference and movement patterns (15, 22) and to bring responses from stress to effectiveness to relaxation (18, 31). These responses must be seen as a continuum and the different types of light and the different responses in individuals is a dynamic, not a static process, as it relates to the continual variation of light that exists as well as individual physiological reactions which may vary, even within the same individual. The overriding theme of this research is that light affects well-being and comfort (1, 15). This well-being is a holistic concept of both the psychological and physical conditions in the environment (47). Comfort can also be both physiological and psychological, and is defined, in this context, as a sense of physical ease or contentment.

Amount of space is an important factor that is directly related to privacy and crowdedness. Privacy and crowdedness, in this context, is a spectrum from the desire to be alone, to the other end of the continuum, which is socialization (50). Often the most important consideration associated with the amount of space is the opportunity for development of social relationships (19), which also depends on the number and type of individuals who are participating in a particular environment and space (12, 25). An outgrowth of the qualities of space and the

relationships that exist within them are the feelings of safety and comfort. This comfort or safety, in a space, is a factor that is directly related to the potential to perform in a specific space in an optimal manner.

Another important physical element is that of nature. Nature, in this context, is defined as the flora and fauna in a surrounding, whether within the interior space, viewable from the living space, or adjacent to the structure. Most often it is more related to flora than it is fauna because of the urban condition of most college communities. Another condition that is included in the element of nature is the weather and amount of sunlight (6, 22, 55). Most of the research indicates that the amount of natural condition is directly related to the elevation of well-being (22, 57). Kaplan (22) has found settings which include natural elements to elevate both well-being and satisfaction, whereas views consisting of built environments raise satisfaction but not well-being. Often, the primary responses are a restorative effect (34), relaxation, and a feeling of connection with a larger perspective or entity in one's life. There are some other studies where there has been a direct connection between greater levels of nature or natural environment and crime. The higher the level of the natural element, the less property crimes and interpersonal crimes occur (35).

Another element is color. Color can be highly influential because it is often the first characteristic of a space that people perceive upon entering. Color seems to be a channel of experiences and processes that evoke immediate responses from past experiences. This response is based on the mental associations that link certain colors to experiences that have taken place in a space of a particular color (52). The response can be complicated by cultural meanings. Studies

have shown that particular colors are interpreted differently in various cultures (17, 44), and although little research has been done in this area, it appears likely these interpretive differences may also extend to subcultures such as that of college students or youth in general. Color preference of an

individual tends to strongly relate to these meanings (44).

### **The person-environment relationship approach**

In the second broad approach to this research, the focus moves from physical conditions to the user or resident of the space, and the focus is on the *interactions between the person and the environment*. In this broad approach, the dimensions of Self, or essence of the individual, is the reference point. This approach includes the relationship between the individual and the environment, types of responses that are evoked by various conditions in the space, and choices the individual makes about the environment.

These studies are interested in the interactions between the person and the environment and how the individual responds in certain environments and the impacts that environments have on the individual. In this approach, the preference and effects of environment are seen as a continuous process or transactional relationship, as students shape their environments, are shaped by it, and continue this shaping and reshaping (20, 21, 38). Environment, in this context, is not a component process but is holistic in nature, whereas in the first approach, each individual environmental element is studied as to its influence. In this holistic approach, it is recognized that each person-environment relationship is ever-changing and dynamic, and that the qualities of these relationships

include a constellation of emotional qualities that reflect the “full magnitude of human experiences” (38). This approach assumes a broad range of diversity of preference and effect among individuals, and the focus is on understanding patterns of the internal processes of the person-environment relationship, across individuals. Four concepts studied within this approach are *personalization*, *locus of control*, *symbolization*, and *place attachment*. Please see Table 2 for research that has been completed on these four concepts and on the transactional approach.

Personalization is one of the concepts that has been identified in research. Personalization, for this context, is one's ability to “externalize expressions” and “share with peers important aspects” of his or her life (28, 50). This personalization, or ability for self-expression in the environment, seems to directly influence ownership, self-esteem, place attachment, satisfaction, pride, adjustment, etc. (9, 24, 28, 50). Personalization results in creation of a unique environment by the individual. It is this investment in this environment that has the primary influence in relation to impact and outcome. One aspect of research in this approach involves the understanding of the particular choices made in the decision processes regarding personalization and environmental preferences. Past experience and previously defined thought patterns may result in the particular way a college student personalizes his or her space.

A concept closely related to personalization is *locus of control*, which is broader in scope. This term locus of control describes an internal feeling or expectation perceived by an individual as to the degree of power one has to influence his or her personal environment (49). Locus of control is a continuum from having perception of being in full control of one's living space to the percep-

tion of the environmental elements being fully externally controlled by others. Locus of control can include personalization, which is the ability to adjust one's environment to achieve objectives such as self-expression. In addition, locus of control can be perceived in factors of safety, security, and also structural elements such as hard architecture, state of repair, cleanliness, etc. (37, 50). Locus of control appears to be directly related to satisfaction. Some research has shown that students generally perceive an external locus of control (37). This may be dynamic and change as students experience the opportunity for greater choice during their junior and senior years. This perception of external locus of control may also be due to the typical living situations of students, in which the structure of the building can generally not be altered and the economic ability of students to implement major change within a living space is minimal.

Another concept is symbolization. The essence of this approach is the interpretation of the personal symbolic meanings that individuals give to objects or environmental elements. Symbols “stand for something else by relationship, suggestion, interpretation, resemblance, or association” (39). An individual may relate a certain quality of the living space or an object within a living space to a belief, experience, or other abstract concept. This environmental condition or object then becomes a symbol which represents more than what is literally perceived or experienced in a place (43, 45). The perception of a place and the cognitive process of symbolization can be close to instantaneous, and the perception and the symbolization can require careful exploration to determine (39, 46). It is in understanding what these symbols mean to the individual that gives a greater understanding to environmental spaces and their impacts.

The meaning of symbols has a direct effect through the association process. The more powerful symbols are those that help one focus one's life and relationships. Symbol is a focusing process that adds meaning to life and gives life direction in terms of reflections of memories (36).

A third concept is place attachment. In this context, the individual has a designated preference for location based upon previous experiences (48). It is not associated with past experience only but also can be associated with anticipated future experiences, even though past experiences are the strongest in terms of important variables and constructs. This process of place attachment is by association in that positive and negative experiences have taken place in certain types of environments and these environments elicit a type of response (7). This place attachment in studies has been directly correlated with self-esteem aspects, pride, supports for personalization, and function in a specific environment (7, 14). In fact, this place attachment factor has been a block to the experiencing of new environments and the desire to engage in the change process (16).

## **RESEARCH METHODOLOGY**

### **Juniors and seniors exercise choice in their environments**

This study focused upon juniors and seniors because one of the influencing factors that has been found both for students and for other populations is that of choice (12, 38). The culture at Bowling Green State University, where this study took place, is designed for freshmen and sophomores to live on-campus. When the residency requirements for on-campus living are met at the end of sophomore year, juniors and seniors are free

to exercise choice of spaces in which to live. In these junior and senior self-selected living environments, it is likely that choices have been made with the intention of facilitating greater success for oneself (23, 54), and that these participants have a sense of perspective on their preferences and the effects of their choices. The exploration of these spaces and the understanding of choice factors expressed within those spaces, have implications for the design of spaces for freshmen and sophomores that better address the needs of individual students and facilitate greater success. The identification of those choice or preference factors and their implications was the purpose of this study.

### **Characterization of participants**

Participants in the study were volunteers selected from recreation/sport facility management and design courses offered in the School of Human Movement, Sport, and Leisure Studies of Bowling Green State University, in the spring of 2004. Of the seventeen participants, one of the participants withdrew from the study so there were 16 individuals who completed the interviewing process. The mean age of the participants was 22.7 and their class rank was either junior or senior. They were all off-campus residents and lived within apartment complexes and houses that they had selected. All the participants were within walking distance of the University. There were 147 settings that were analyzed and there were 113 word associations elicited that were the basis of the categories formed. There were 13 males and 3 females in the study. There were 7 individuals in the study who had some interest in pursuing a career in facility planning. The reason individuals from recreation/sport facility management and design courses were selected in this initial study was that this was an exploratory

study and these individuals may provide the spectrum of responses that may be possible. Additionally, they had a sensitivity to facility issues, especially with regard to college students, since many graduates of this program have taken positions in university recreation and sport facilities. It was believed this group could be active and enthusiastic participants in a study of this nature. A choice was made to use volunteers because of the time demands that the study required of participants.

### **A new methodology involving video images and consensus-building**

An eclectic approach was used to study specific environmental elements in off-campus living spaces, as well as the combined effects of these elements on the participants. The primary focus was the individual and how these specific environmental elements, as well as their combined effect in a holistic manner, affect the individual in relation to success in the college environment. A consensus-building technique was used to explore the individual associations and the associated meaning of particular environmental elements both from an individual as well as a holistic perspective.

The consensus-building process included (a) participant self-selection of key elements in their living environments, (b) a modified photographic technique as a means of capturing data, an interview process to elicit associations and meanings from the participant, and (c) a categorization process to relate group responses into themes.

The means of accessing the individual associations and the associated meaning of particular environmental factors is through the emotions of the participants. Meaning in the person-environment relationship is a "personal, emotive process" (48, 56), and archi-

texts such as Alexander (1) have held the assumption that success of a built environment can best be accomplished by assessing the feelings of those who use the environment. Participants were asked to self-select places in their living environments that held any emotional connotations or aroused any emotional response. Each participant used video to capture the individual settings. These video images convey a holistic impression of a place, including emotional meanings and associations (4, 10, 11, 33). In this study these images were used as a gateway for discussion of the meanings of the places selected. A comprehensive interview process was later used to determine what emotions, meanings, and associations each self-selected and videographed place held for the individual, and what relationships exist between specific environmental elements and success in the college environment.

The self-selection of elements has roots in a collage technique developed by Keddy (26). In that research, participants constructed experiential collages of still images which were an "active method of collecting data" (26) that gave the researcher insight on the participant's personal experience within a space. The product of the collage provided a "voice for the participants and a compelling visual display" of the participant's experiences within a space.

Video was the more compelling choice over still photographs as the tool for capturing data, in this study, for two reasons. First, there was a need for the researcher to have a broad visual and spatial perspective on the environmental elements self-selected by the participant. During the consensus-building process, this helps interpret meaning in relation to the participant and the surrounding environment (8). Second, college and university students feel comfortable with the

dynamic nature of video instead of the static nature of the still photographs. This group also enjoys ease-of-use of video equipment, which relates to the generational context and culture of this period of time.

In photographic techniques, there are three methods of interpreting and correlating data. One technique is where the photographs are taken by the participants, and the interpretation is solely completed by the researcher. The second method relies on the participant to take photographs and interpret them independent of the researcher. The third technique is a blending of the first and second methods in which the participant and the researcher engage in some kind of dialogue or cross-pollination of ideas to develop a consensus. The third technique, where there is consensus-building from both the researcher as well as the participant, was chosen for this study because it has produced the most reliable results and was most conducive for the complex nature of this study.

Observational analysis of captured images combined with verbal dialogue forms the optimal means in which to understand one's experiences with an environment (26, 27). This combination of interaction with the participant and observational analysis of the video forms a consensus building technique. The consensus-building process may be the most important element in terms of the quality of the study. If the consensus building technique that is used with the participants is not a comfortable setting, then much of the results will be swayed by the discomfort and the amount of information that the individual is willing to share. Another problem with the consensus building technique is that many times the individual does not have the primary information and indeed does not understand their feelings in relation to their environment, and it takes a type of insight to guide the participant in the proper direction

for interpretation. This guidance process must remain objective so that the results are not biased by the researcher's interpretation. The only way that this can be achieved is by the interaction process and a checking and re-checking of the results, based upon the participant's perspective. The consensus building process, therefore, in this study, began with the general perspective and moved toward the specifics, as comfort and relationships were built with the clients.

The first three steps used to begin the process of the consensus building in this study were: (a) introduction of the participants to the research project in relation to the purpose of the study and the techniques that would be used; (b) meeting with the participants as a group to discuss the questions and to familiarize them with the video techniques to be used and the type of information that would be collected by them during the study; and (c) providing general guidelines to the participants on how and what to capture on video (see Table 3) and also facilitation of training from an audiovisual specialist on how to use the video equipment to collect the data.

The next step was done independently by each participant over a period of 2-3 weeks. This step was the participant's selection of several scenes that he or she wanted to tape based upon the initial guidelines given in the study. The participants then each independently collected data by videotaping each setting using university equipment. (Throughout this paper, the terms *scene* and *vignette* are used interchangeably to describe these short, 30 second to 1 minute long, pieces of video footage focusing on one setting each.)

The next five steps were done in collaboration between the participant and the research team. After the participants completed the videotaping and reviewing the tapes, there

were intensive interviews conducted independently with each participant to elicit initial responses to the scenes that the participant selected and videotaped. Each participant, in the first interview, only viewed his or her own vignettes, and provided insight as to the personal meaning of each setting shown in the video footage. These insights were clarified and reduced to simple descriptors. See Table 4 for several sample scenes and the descriptors that students used to explain the meaning of these scenes. The researcher's notes on the video are also included in this table.

In the next step, the researcher interpreted the comments from the preliminary interview and began to summarize the data in a usable format for the next interview. Table 5 shows a summary of all the scenes that were independently described by one particular descriptor. During the interviews, it became evident that descriptors could be grouped into broader, more conceptual categories. Some of these categories were more clearly defined than others. Table 6 shows two of the categories that contain multiple descriptors.

To process the data and make connections between scenes, participants, and descriptors, and to form preliminary categories, the researcher used a non-linear word association program. This graphic representation of relationships, a methodological tool similar to a concept elucidated by Miles and Huberman (41) served as a heuristic device for the researcher during the analytic process.

A second interview was conducted and the data compiled during the first interview was used to further develop associations and to clarify and confirm the relationships between descriptors. It was possible during this interview to change or clarify any in-

formation from the first interview and for the participant to comment on the researcher's interpretations. During the second interview, the students were given seven questions to stimulate their thinking about their experience and to give the researcher a perspective on the relationship between the student and his or her environment (see Table 7). The seven questions were developed through an intuitive process from the researcher and his review of literature. Questions even though based on literature were guided by the first and second interview in terms of their development. The questions were used as a structuring process to help with the data interpretation by the individual.

The researchers, after the questions were completed, reviewed each of the responses from the student. Responses to the interview questions helped shape and refine the categories that were initially formed. These responses were discussed with the student to ensure that the interpretations of the researcher were accurate. The student had the option to change and clarify their responses and to begin to build a better consensus of their experiences and to be able to interpret their results.

The final step was completed by the research team. The non-linear word association program was used to continue the analysis of descriptors and their relationships. This was an organizational process to help clarify the categories that had been initially formed. Once these categories were formed, then an intuitive process by the researcher was used to polish and definitively categorize the results. This was a process in which each client or student was re-identified and their responses were reviewed to determine the reliability and validity of the categories established. A holistic ap-

proach was used to review the data to ensure the integrity of the process.

## RESULTS

### A constellation of responses

The descriptors can be classified into two general types; those that have a very apparent, strong relationship, and are very clearly defined or codified and the other type are responses where there are not clear relationships based upon a general broad categorization that has an intuitive position within the study. These are factors that need to be explored further to determine their conceptual relationships.

### Categories of descriptors with a strong and clear structure

Categories of descriptors that had an apparent, clear and strong structure are shown in Table 8. Of these categories, five could clearly be identified as major categories: (a) Reflections Of Self (131 associated responses); (b) Relationships With Others (78 associated responses); (c) Physical Elements (69 associated responses); (d) Association With Experiences/Symbolism (58 associated responses); and (e) Philosophical (53 associated responses). One response was counted every time a participant attached a particular descriptor in that category to his or her scene. It is possible for participants to attach multiple descriptors from the same category to one scene.

The descriptors in the category Reflections of Self are internal processes that are related to personalization and identity. Identity, in this context, is the way the individual wants to express himself/herself to the world consciously or unconsciously. The three most important responses were (a) My Style (24),

(b) Sports (18), and (c) Pride In Place (15). My Style is a self-recognition of themselves or a reflection of themselves. The category Sports was primarily memorabilia or equipment that recognized a close relationship to the participation preferences of the individual. Pride In Place is the reflection in the surrounding of one's personality. This is obvious pride also in the product of one's surroundings.

There seemed to be three sub-categories within the category Relationships With Others. The three sub-categories were (a) Gathering (53), (b) Frustration With People (24), and (c) Control (1). Gathering is the category of words that describes places where individuals associated or are social with one another. Frustration With People associates with relationships that have caused some type of anxiety within the person's life. The form of the anxiety is primarily in terms of internal processes such as roommates or external relationships such as landlords. The third category, Control, is site-specific and it is associated with an individual who has a specific location within the living space and sees that as his/her and as a place where one can dominate other relationships or housemates by having greater choice of television programs, etc.

The next category, Physical Elements, has two primary sub-categories: (a) Design (44) and (b) Nature (25). Design is the physical layout and factors that influence the individuals in the living space. Nature is the manifestation of the natural elements and their limiting or enhancement of the living space. This is the condition that the individual does not control but has to adjust to. Most of these are climactic factors, and the only factor which the participant has control over is pets. These pets are a choice to enjoy the natural elements within the living space.

The Association With Experiences/ Symbolism category has four sub-categories: (a) Joyful Experiences (30); (b) Stories (21); (c) Frustration With Tasks (14); and (d) Physiological (3). The Association With Experiences are the symbols within the living space which remind individuals of a specific or group of experiences that occurred in a specific location. Often this location brings to mind these memories and the associated space takes on that particular condition with that association. Joyful Experiences are those that have positive psychological conditions and have some motivational element directly attached. Stories are those memories that the individual cares to repeat and re-live the experience through the association with the symbol. Frustration With Tasks is a negative psychological condition that has the memory associated with struggles whether it is schoolwork, task associated, etc. Physiological is the body's response to a symbol or a time and condition within the living space.

The Philosophical category did not have sub-categories, but the category Philosophical is where individuals step outside of their situation to express perspective or understanding of their surroundings or the condition of their surroundings. The descriptors in this category included "compromise," which participants described as a choice where he or she consciously explored the benefits and disadvantages of a particular living space, and felt that the benefits outweighed the disadvantages. Some of these compromises were due to financial situations of the participant, which Ankele and Sommer (3) also found in their earlier research on off-campus environments. Another term in this category is "change in life," which is similar to compromise in that the participant sees his or her living environment as a temporary condition, an in-

between state between dependent living and fully independent living.

### **Categories without a strong or clear structural relationship**

Those categories that did not have a strong or a clear structural relationship are shown in Table 9. These categories were: (a) Comfort/Discomfort (39); (b) Escape (32); (c) Negative Internal Perceptions (26); (d) Temporary Conditions/Choice (23); (e) Angry/Annoyed Feeling (14); (f) Privacy (8); (g) Sad Feelings (8); and (h) Expectation (3).

The first category Comfort/Discomfort that seems to have no definite structure were those factors within the living space that helps the individual feel at ease or uneasiness within the living space. The second category of Escape is a reflection of the ability to use the space to be released of the everyday burdens or responsibilities. The third factor Negative Internal Perceptions is directly associated with feelings of helplessness or lack of control of the space. The fourth factor is Temporary Conditions/Choice. These are ways that the individual keeps his/her space, such as clutter, but recognizes the ability of the space to change in relation to the condition of time.

## **CONCLUSIONS**

### **Summary**

This is an exploratory study and represents an adaptation of a collage technique that has been used very successfully, only now in the dynamic form of video. The results, therefore, are not to be generalized but the primary purpose is the development of a technique that can be used in consensus building. Consensus building is a process that is

used to increase the validity and reliability of the study as there is a constant check to make sure that there is the precision, as well as that the constructs, that are being developed are the direct reflections of the client and not biased by the interpretations of the researcher.

The findings of this research study can help architects and planners in assessment of existing built structures, assessment of renovation plans, and design of first and second year student on-campus living spaces. The results can also be used to reassess policies and procedures relating to on-campus housing. Four major findings relate to the importance of these factors as influences: (a) personalization; (b) social dynamics and gathering spaces; (c) physical elements, especially the aesthetic elements; and (d) associations and symbols between experience and environmental cues. The fifth major finding is that young people have a strong ability to view their living space with a broad perspective.

#### **The importance of personalization: "Shaping the environment"**

Reflections of Self, the strongest response among participants, related to the ability of the individual to express himself or herself by personalizing the space. The implications of this finding suggest that well-being is enhanced by allowing personalization of space at the greatest level possible. This allows the student to shape his or her own environment in a two-way relationship with the space, rather than being continually influenced in a one-way process by a space that may not be reflective of a student's likes, personality, or identity. This personalization relates to the student establishing place attachment and pride in place which may also relate to the elements of ownership, responsibility, and care for physical

space which were named by Schroeder (50) in a previous study. It seems possible that a connection, though indirect, could be made between personalization of space and greater care of physical space by the student, which could have financial implications for universities dealing with problems of vandalism or student neglect of space. This benefit, however, could be tempered by other missing elements or shortcomings in the facility.

#### **The importance of social dynamics and gathering spaces**

Secondly, in the category Relationships With Others, responses were grouped into a subcategory Gatherings and a subcategory Frustration With People. The first subcategory of associations relates to the perception among students that gathering spaces are important and have strong emotional connotations. The second reminds us that social dynamics are intricate, and that the monitoring and guidance of social dynamics in a university residence complex is a needed element. In this study, responses were obtained from students who had exercised choice of where to live and with whom. In a residence hall environment, the Frustration With People type of response may have a greater strength because of choice not being part of the dynamic. Programming which includes awareness and adjustment of social dynamics becomes a major factor in student well-being.

#### **Perception of physical elements within a space**

Thirdly, Physical Elements were associated with scenes over sixty times implying that students are aware and affected by physical elements in their environment. This category only included factors that were permanently part of the living space or the site. These responses were divided into Nature

and Design subcategories but could also be divided into Aesthetic, Functional, and Other physical factors. Of the three, Aesthetic factors including design issues, sunlight and views of nature, and “uplifting” design elements had the greatest strength. This may be a sign of changing student attitudes shaped in part by the current emphasis in society on designing both facilities and products for maximum aesthetic, functional, and emotional value, but also relates to much earlier research by Maslow and Mintz (40) and Mintz (42) on the well-being benefits of aesthetic environments.

### **Symbolism and association with experiences**

Fourth, a category of Symbolism/ Association With Experiences shows that students relate past experience with symbols within the living space or the place itself. To explain this relationship and its implications further, a longitudinal study may be needed which includes both the reflections of freshman students in residence halls during and after their residency in the on-campus environment, as well as their reflections after they move to their choice of housing in their final years of undergraduate study, to determine to what degree associations change over time in this population. It seems likely that during the first few years of college life, associations with symbols in the on-campus housing units are formed which can be positive or negative. Since many universities are encouraging students to live on campus after their first two years, the first year becomes a window of opportunity for positive associations to be formed and becomes a key factor in the success of a three- or four-year on-campus housing plan.

### **College students’ ability to have perspective on their living environment**

Fifth, the ability of students to step outside of their situation to express a broad perspective on either their living space, their situation in life as it relates to their living space, or their conscious choices that led them to choose or accept compromises in their living space, shows the type of emotional intelligence of students that can make them valuable contributors to dialogue with campus planners regarding student housing. This input, which is often overlooked in the planning process, can help planners and architects design housing facilities that increase the likelihood of student success and well-being, and also makes students a partner in the design. This “buy-in” and ownership by students can translate into greater satisfaction with the design and shared responsibility for the compromises contained in the design.

### **Continuing explorations**

In addition to greater understanding of the five implications stated, further research can explore the variation in responses among males and females, which was not addressed in this study. Another line of research is the contrast in responses between students who self-report having a visual or photographic memory versus those who describe their memory processes differently. This factor was explored in the interview questions of this study and elicited interesting responses. Thirdly, it was noticed by the researcher that during the consensus building process, participants seemed to experience greater clarity and expansion of the constructions they initially began with. An interview question was included which relates to the ontological authenticity of the process, and this part of the process warrants further exploration (13). The type of exercise used in the pro-

cedures of this study has potential as an educational technique for facility design and management students as a way raising awareness of the environment-emotion relationships that occur in facility users.

The methodology developed as part of this study may be useful to researchers interested in understanding the dynamics of living environments. The key elements of the methodology that may be of greatest interest to researchers are the carefully structured consensus-building technique, video as a means of capturing the context of a surrounding, and the use of non-linear software as a way of processing the large stream of data that arises from the constellation of perceptions that people have regarding their environments.

### **Integrating knowledge into practice**

The work presented here explores the meaning of the living space to college students and brings us closer to understanding the elements that influence student success and well-being within a space. With conceptual information such as this being translated into practice, student housing can become more conducive to satisfying the needs of students for their living spaces, where much of a student's college experience and personal development takes place. Both policies and designs are part of the equation, and can be updated to raise the potentials for student success.

**Table 1. Research completed on physical elements**

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<i>Element</i>	<i>Sources</i>
<b>Amount of space</b> & socialization	Educational Facilities Laboratories, 1972; Heilweil, 1973; Kaya & Erkip, 2001; Schroeder, 1980
<b>Color</b> & associations & cultural interpretation Color preference	Staples & Walton, 1933 Guerin et al., 1994; Park & Guerin, 2002 Park & Guerin, 2002
<b>Light</b> & cognitive responses & mood  & preference & subjective impressions	Knez, 2001 Gordijn et al., 2001; Knez, 1995, 1997; Knez & Kers, 2000  Alexander et al., 1977; Flynn et al., 1973 Flynn et al., 1973
<b>Nature</b> Amount of natural condition Effects Weather & sunlight	Kaplan, 2001; Wells & Evans, 2003 Kuo & Sullivan, 2001a; Kuo & Sullivan, 2001b Boubekri et al., 1991; Kaplan, 2001; Van de Vliert et al., 2004

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**Table 2. Research completed on person-environment interactions**

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<i>Concept</i>	<i>Sources</i>
<b>Locus of Control</b>	LeBrasseur et al., 1998; Schroeder, 1980
<b>Personalization</b>	Corbett, 1973; Kaya, 2003; Killeen et al., 2003; Schroeder, 1980
<b>Place Attachment</b>	Brown et al., 2003; Pocock & Hudson, 1978
<b>Symbolism</b>	Langer, 1942/1957; Martinson & Chu, 2003; Page, 1992; Percy, 1990; Pettersson, 1999
<b>The transactional relationship</b>	Huebner, 1979; Huebner & Lawson, 1990; Kaiser, 1972; Manzo, 2003; Zube et al., 1982

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**Table 3. Guidelines for Scene Selection and Video Capture**

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*Guidelines for participants*

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1. Choose 5-10 places in your current living space (room, apartment, house, yard, parking area, etc.) that stir your emotions in some way. It can be any human emotion, even ones you can't really give a name to. Decide how to best capture this emotion or capture this feeling for each place on videotape. Tape each of the 5-10 places for between 30 seconds and one minute each. Each video segment becomes a video VIGNETTE - "a short scene or incident, as from a movie." The camcorder allows you to pan in, focus, and to move around the area you are taping. Also, you can talk about the place... or the feeling... or tell a story about the place while you are taping. (You will have ample opportunity to comment on your scenes later if you do not choose to use audio while taping.) You can submit anywhere from 5-10 "scenes."
  2. Focus each scene on ONE PLACE - then stop the camera - then restart taping for the next scene. A whole scan of your entire house, room, or apartment would not be useful. Pick out the particular things that are symbols for you - that mean something - that draw out your emotions. We are focusing on the physical environment.
  3. Every participant is being asked to tape 5 places (5 one-minute scenes). The "one minute" is a guideline, not an absolute-you will find that some scenes might be closer to thirty seconds and some slightly over one minute. After the first five, some of you will have more scenes to tape that elicit the SAME type of feeling or DIFFERENT feelings. You can submit up to ten scenes. Some of you will feel that "your story has been told" after 5, and that is fine also.
  4. People may appear in your scenes if they are part of the emotion/feeling you wish to capture. Any person, for instance a friend or roommate, who is in any of your footage (video or audio) must submit an informed consent form.
  5. Do not videotape any activities that are illegal or might be construed that way. Remember that other people including fellow students and faculty may view your scenes at some point in the future. Do make conscious choices and use discretion in choosing what to tape.
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**Table 4. Sample scenes and descriptors**

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<i>Scene</i>	<i>Descriptors applied by participant during the consensus-building process</i>	<i>Researcher's notes</i>
<b>Bedroom</b>	Comfort My Style Nature & Sunlight Organized Relaxation Uncluttered Uplifting	Descriptors for this scene (and all scenes) were elicited during the consensus building process. This video showed a remarkably neat, masculine bedroom with a black comforter on a full-size bed and a high school football jersey (presumably the participant's) hanging neatly on the wall next to a window.
<b>Couches</b>	Comfort Favorite Couch Gathering	Video of a living room, showing two couches. One couch was informally known by the participant and his roommates as the "TV couch" and the other as the "pass-out couch."
<b>Front Porch</b>	Close to Home Convenience Gathering Nature & Sunlight Warm Weather	This video showed the front porch of a typical early 1900's house. The participant commented on the home's proximity to campus and how often she and her roommates used the porch.
<b>Storage Room</b>	Cluttered Design Issues Humorous Space Issues Sports Storage Space	This participant self-selected scene showed a "catch-all" storage room which included exercise equipment, bathroom supplies, and laundry, and led to the back door of the house.

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**Table 5. Scenes linked to a common descriptor**

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<i>Sample descriptor</i>	<i>Scenes independently linked to this descriptor</i>	<i>Researcher's notes</i>
<b>My Style</b>	Fraternity Bedroom Sports/Computer Room Comfortable Bedroom Attic Bedroom Desk with Computer Bed Tiger Painting Dark Living Room Chair Where I Read My Room Roommate's Bedroom Bedroom Salvador Dali Simpsons Poster Artist's Bedroom Downtown Cleveland Unmade Bed Bedroom (Cold) Main Living Room Bedroom Wall Rocky Family Room DVD Collection Hallway	These 24 scenes were independently described by participants as being expressive of their personal style. The "My Style" descriptor was eventually categorized in the broad category, "Reflections of Self." The names of the scenes were informally designated by the researcher and participant. Each scene was also numbered for the researcher's records so as to designate which participant filmed the scene.

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**Table 6. Sample categorization of descriptors**

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<i>Category</i>	<i>Descriptors contained within category</i>	<i>Researcher's notes</i>
<b>Comfort/Discomfort</b>	Comfort Cozy Discomfort Favorite Chair Favorite Couch Grill Smell Homelike Music Safety Issues Sleep	During the interview process, several themes became evident as participants described similar feelings and connotations. Names were given to these broader, more conceptual categories, and descriptors were grouped within these categories. Comfort/Discomfort was one of the categories.
<b>Reflections of Self</b>	Change in Life Creative Customized Freedom My Style Organized Original Pride Pride in Place School Spirit Seeing Change Happen Sports Story of My Life Right Now Subtle Pride Who I Am/Image	Reflections of Self was one of the larger categories. Descriptors grouped within this category focused on self, self-expression, and the feeling of pride.

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**Table 7. Questions placed in second interview**

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*Written questions (responses typed by participant)*

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- (1) How important is environment to well-being? To enjoyment? To your efficiency?
  - (2) Do you have a photographic memory? Tell me what you can about it.
  - (3) Are there compromises in where you live? Why did you settle for these compromises?
  - (4) Which scene you taped best expresses “who you are”, and why?
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*Verbal questions*

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- (1) Is emotion important in facility design?
  - (2) As a facility manager, would you consider it important for your attention and awareness?
  - (3) As a potential facility manager/designer, how would you cultivate this awareness?
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**Table 8. Categories with definite structure, and descriptors placed in each category**

**REFLECTIONS OF SELF (131)**

my style (24)  
 sports (18)  
 pride in place (15)  
 pride (11)  
 customized (11)  
 Who I Am/image (10)  
 subtle pride (7)  
 change in life (6)  
 organized (5)  
 original (5)  
 school spirit (4)  
 seeing change happen (2)  
 freedom (2)  
 creative (2)  
 story of my life right now (2)

**RELATIONSHIPS WITH OTHERS (78)**

**GATHERING (53)**

gathering (23)  
 family (7)  
 cooperation (4)  
 party spot (4)  
 bantering/competitiveness (4)  
 support (3)  
 brotherhood (3)  
 friendships (2)  
 sense of community (1)  
 respect for each other (1)  
 love (1)

**FRUSTRATION WITH PEOPLE (24)**

frustration with roommates (10)  
 frustration with landlord (9)  
 mutual neglect (5)

**CONTROL (1)**

control/power (1)

**PHYSICAL ELEMENTS (69)**

**NATURE(25)**

warm weather (8)  
 nature & sunlight (8)  
 pets (5)  
 cold weather (4)

**PHYSICAL ELEMENTS (ctnd.)**

**DESIGN (44)**

design issues (13)  
 convenience (8)  
 functional (7)  
 uplifting (7)  
 storage space (5)  
 openness (2)  
 new (1)  
 close to home (1)

**ASSOCIATION WITH EXPERIENCES/SYMBOLISM(58)**

**JOYFUL EXPERIENCES (30)**

fun (13)  
 happiness (7)  
 abundance (5)  
 peace (3)  
 excitement (2)

**STORIES (21)**

reminisce (10)  
 story behind it (8)  
 accomplishment (5)  
 connection (5)  
 special moment (2)  
 couch story (1)

**FRUSTRATION WITH TASKS (14)**

frustrating tasks (6)  
 schoolwork (4)  
 time issues-hectic (4)

**PHYSIOLOGICAL (3)**

hungry (3)

**PHILOSOPHICAL (53)**

compromise (14)  
 humorous (11)  
 space issues (8)  
 home with a twist (7)  
 change in life (6)  
 not a big deal (5)  
 love/hate (2)  
 “on a good day” (1)

**Table 9. Categories without definite structure, and descriptors placed in each category**

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**COMFORT/DISCOMFORT (39)**

comfort (13)  
favorite couch (5)  
sleep (5)  
favorite chair (4)  
discomfort (3)  
homelike (3)  
grill smell (2)  
music (2)  
cozy (1)  
safety issues (1)

**ESCAPE(32)**

relaxation (23)  
game room (3)  
down time (2)  
escape (2)  
work on house/yard (2)

**NEGATIVE INTERNAL PERCEPTIONS (26)**

want to give up/move out (6)  
neglect (4)  
ripoff (1)  
can only take care of myself (3)  
least favorite room (2)  
i'm poor (2)  
wasteland (2)  
depression (2)  
cooped up (1)  
disconnection (1)  
exhaustion (1)  
blah and dull (1)

**TEMPORARY CONDITIONS/CHOICE (23)**

cluttered (10)  
dirty (7)  
messy (4)  
uncluttered (4)  
wreckage (2)  
clean (1)

**ANGRY/ANNOYED FEELINGS (14)**

annoying (6)

anger (4)

loud (4)

**PRIVACY (8)**

mine (7)

privacy (1)

**SAD FEELINGS (8)**

frustration (5)

longing (1)

overwhelm (1)

sadness (1)

**EXPECTATIONS (3)**

what college should be (3)

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