

---

## UNIT 2 HUMAN AND ENVIRONMENTAL TRANSACTIONS\*

---

### Structure

- 2.0 Introduction
- 2.1 Human Nature and Environmental Protection
- 2.2 Personal space, territoriality, and crowding
  - 2.2.1 Personal Space
    - 2.2.1.1 Measurement Techniques for Personal Space
    - 2.2.1.2 Studies on Personal Space
    - 2.2.1.3 Application of Personal Space Research
  - 2.2.2 Territoriality
    - 2.2.2.1 Factors influencing Territoriality
    - 2.2.2.2 Types of Territoriality
    - 2.2.2.3 Functions of different of Types of Territory
    - 2.2.2.4 Functions of Territorial Behaviour
    - 2.2.2.5 Territoriality and Aggression
  - 2.2.3 Crowding
    - 2.2.3.1 Crowding: Nature and Characteristics
    - 2.2.3.2 Individual Differences in reaction to Crowding
    - 2.2.3.3 Cultural factors in Crowding
    - 2.2.3.4 Psychological Effects of Crowding
    - 2.2.3.5 Crowding and personal space in India
- 2.3 Place Attachment
  - 2.3.1 Factors influencing Place Attachment
  - 2.3.2 Psychological Dimensions of Place Attachment
  - 2.3.3 Measurements of Place Attachment
- 2.4 Place Identity and Place Dependence
- 2.5 Theoretical models of human-environment interaction
  - 2.5.1 Overload Models
  - 2.5.2 Behavioral Constraint Models
  - 2.5.3 Ecological Adaptation Models
- 2.6 Summary
- 2.7 Keywords
- 2.8 Review Questions
- 2.9 References and Further Reading
- 2.10 Additional Online Resources

---

\*Ishita Chatterjee, Department of Applied Psychology, University of Calcutta, Kolkata and Monika Misra, Discipline of Psychology, School of Social Sciences, IGNOU, New Delhi.

## Learning Objectives

After having read this Unit, you will be able to:

- Explain the relationship between human nature and environmental protection
- Elucidate the concepts of territoriality, personal space and crowding
- Discuss place attachment and identity
- Identify the factors and psychological dimensions of place attachment
- Explain the different models of human-environment interaction

---

## 2.0 INTRODUCTION

---

Human environment interaction can be described as the connections between human beings and the entire ecological unit. The human social systems and the environment are intricate, adaptive systems. They are intricate since ecological units and human social systems have a lot of elements and correlations between them. Adaptiveness is the feedback system that supports survival in continuously changing surroundings.

Human environment interaction is the way people adapt and modify the environment. There are three types of human-environment interaction:

1. the way people depend on the environment for food, water, timber, natural gas, etc.,
2. the way people adapt the environment to fulfil their own needs
3. the way people modify the environment positively or negatively like building dams, etc.

Environmental psychology deals with the mutual transactions taking place between individuals and their natural and built environments. This discipline investigates the behaviours that reduce or enhance sustainable, pro-climate, and nature-friendly choices, the cause and correlates of those behaviours, and suggests interventions to foster healthy pro-environmental behavior. It also studies interactions in which nature provides relaxation or causes distress, and exchanges that are more mutual and interdependent, such as the development of place attachment and identity, and the effects of and arising from common everyday physical settings such as home, workspaces, academic institutions, and public places. With readily accessible internet data, people are spending more time in virtual environments, and thus online human-environment transactions are receiving increased attention in research. Human existence is dependent on one environment or another, and the transactions between them have critical consequences for the people and their natural and built environments. In this unit, we expand our understanding by learning about the concepts of personal space, territoriality, crowding, place attachment and place identity. The unit also engages with the various models from certain theoretical standpoints on human-environment interaction.

---

## 2.1 HUMAN NATURE AND ENVIRONMENTAL PROTECTION

---

Human nature refers to the fundamental disposition and traits of humans, such as their inherent ways of thinking, feeling, and doing. The environment is influenced by human

nature. Environmental protection is the activity of individuals, organizations, and governments protecting the natural environment. The primary goal of environmental preservation is to preserve natural resources and the existing natural environment, as well as to repair and reverse any damage that has occurred. As a result of population growth, overconsumption, urbanization, and industrial growth, the environment is being degraded sometimes the damage is permanent and irreversible. This has been recognized and is a threat to human existence. Thus, different governmental bodies and even non-governmental bodies are coming up with the slogan to save the environment and stop environmental degradation. Since the 1960s, environmental movements have created more awareness of the multiple environmental problems and the strategies that have been taken towards saving the world.

Over the last four decades, more and more research has been focused on determining whether there is a correlation between the changing human–nature relationship, its impact on people’s health, and how it plays a role in protecting the environment. However, determining if there is a correlation necessitates interdisciplinary research into its scope and underlying mechanisms. It is believed that taking an interdisciplinary approach can help researchers better comprehend the complexity of achieving optimal health at the human–environmental interface.

Human nature is majorly influenced by cultural factors that play a crucial role in affecting one’s personality, nature, and traits. Our culture and values play a pivotal role in practices that are directed towards ecosystem protection, biodiversity conservation, and environmental protection. Human societies’ perceptions of their surroundings are substantially shaped by their own cultures and cultural practices. Modern ecosystem management has traditionally been guided by a scientific or conservation philosophy. This has occasionally resulted in a confrontation between culture and conservation, but more recently, there has been a significant acknowledgment that sustainable ecosystem management requires a greater understanding and integration of community-nature linkages. The harsh reality is that most cultures perceive and manage ecosystems through a lens dictated by long-held cultural ideas that have lasted millennia. The challenge for ecosystem management is that in a changing global environment, some of these long-held traditions can degrade the ecosystem, while others can play a critical role in supporting biodiversity conservation as well as assisting society in dealing with the effects of climate change.

Culture can be defined as “a set of distinguishing spiritual, material, intellectual, and emotional characteristics of a civilization or a social group, which includes, in addition to art and literature, lifestyles, ways of living together, value systems, tradition, and beliefs” (UNESCO, 2002). Furthermore, “Cultural systems of meaning alter people’s interpretations of climate change and offer a historical and sociocultural context in which consequences are felt and responses are generated” (Commission on Ecosystem Management, IUCN). For example, the Indian culture takes pride in its strong cultural heritage and biodiversity. Majority of people residing in India follow the religion of Hinduism where they worship the wind, land, wildlife, trees, plants, sun, moon, water, etc. These strong religious values and the culture often emphasizes on the importance of taking care of one’s environment and protecting the environment. The religions scriptures and ancient literature depict the importance of environment. Dose, the Indian culture reflects the traditions, beliefs, and conservation of our environment.

Human activities impact the environment on a large scale and in various ways like overpopulation leads to exploitation of limited natural resources, pollution destroying the quality of air and environment, deforestation leading to soil erosion and depletion of the green areas, etc.

---

## 2.2 PERSONAL SPACE, TERRITORIALITY, AND CROWDING

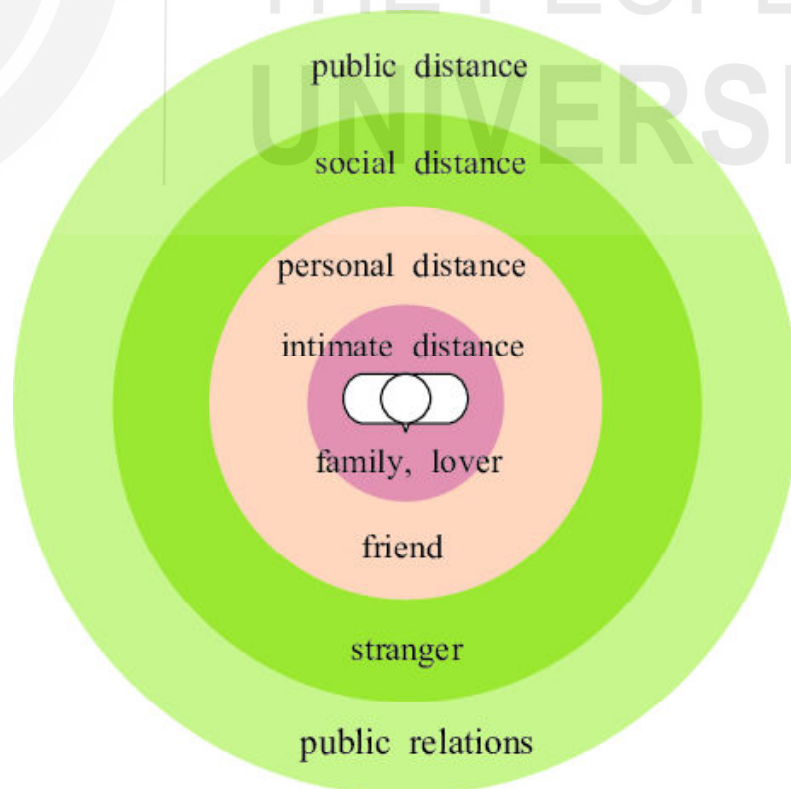
---

Environmental psychologists and social psychologists have given impetus to the concepts of privacy, territoriality and crowding. These concepts play a major role in the study of environment-behaviour relationship.

### 2.2.1 Personal Space

Personal space is the immediate surrounding of someone, encroachment of which can make one feel threatened or uncomfortable. Katz (1937) used the term “personal space” for the first time while Hall(1966) was the first to coin the term ‘proxemics’ which is more or less similar to personal space. Sommer (1969) defines personal space as “an area with invisible boundaries surrounding a person’s body into which intruders may not come”. In his famous book entitled *The Hidden Dimension*, Hall (1969) defines personal space as a small protective sphere or bubble that an organism maintains between themselves and others.

In short, personal space is conceived as an envelope surrounding a person. The invasion of personal space by unwanted others leads to a general tendency of withdrawal and discomfort. Personal space is not fixed and stable but it changes considerably depending upon the context interacting persons and circumstances. It is directly linked to communicational channels thus it is the dynamic and active concept of human spatial behavior (Nagar, 2006).



**Figure 2.1** An illustration of the classification of different zones in personal space

Source: E.Hall, T.Hidaka tr., N.Sato tr., *The hidden dimension*, Tokyo, 1986

Hall proposes the use of 4 personal zones in social interaction (refer Figure 2.1) between individuals and a brief description of these zones is given below:

- i. **Intimate distance** – the interpersonal distance ranges from 0-18 inches. At this distance, strong sensory inputs like smell, body, heat, sound, and feeling of breath combined to create inescapable involvement between interacting parties.
- ii. **Personal distance** – the distance between the interacting parties ranges from 1.5 to 4 feet. This distance is used for most interactions between other people friends, and classmates mainly have fallen within this range.
- iii. **Social distance** – this distance ranges from 4-12 feet and is characterized by Hall as business distance. The transactions are formal between people who are not well acquainted usually adhere to this distance.
- iv. **Public distance** – This distance zone extends beyond 12 feet and usually, this is maintained between the speakers and the public.

### 2.2.1.1 Measurement Techniques of Personal space

Although there are various ways and techniques that can be used to study and measure personal space but there are a few that are most widely known and used to measure this dimension. There are three general methods listed by Altman (1978) to measure personal space, these are as follows:

- i. **Simulation Method** It is a method where hypotheses are tested for observed problems and corrective measures can be experimented with before they are implemented in the real setting. It was first developed by Kuethe (1962) in their study on social skills. Participants were asked to place miniature figures representing the self and others on board. Considerable consistency and organization in the individual arrangement of figures were reported. The methodology used by Kuethe stimulated several simulation techniques to measure personal space (Nagar, 2006).
- ii. **Laboratory Method** This is one of the most used methods to measure personal space, and the process most used is the stop-distance procedure. The participants are asked to approach at a point when they feel discomfort; this procedure is repeated for different angles of approach. The interpersonal distance between the participants is the measure of personal space. The stop-distance method and unobtrusive techniques are most suited for experimental and naturalistic studies (Hayduk, 1978).
- iii. **Field-naturalistic or Observation Methods**

The naturalistic method involved the unobtrusive observation of participants in actual interactions. A personal space study in a naturalistic setting was conducted by Gifford (1987). It is one of the effective methods for studying human-environment interaction. Cases on real-world phenomenon can be build upon which is not possible in other indirect methods. However, observation should be systematic and unobtrusive as much as possible.

### 2.2.1.2 Studies on Personal Space

The major review on personal space is divided into three categories:

- i. **Studies on Personal Factors** Bhattacharya and Ghosh (2014) of the University of Calcutta conducted a study to assess the requirement of personal space by people between the ages of 21-30 years considering the gender differences and interaction with the same and opposite sex. It was found that personal space varies with the difference of gender considering the context of interaction with known person same-sex and known person opposite sex. The female group was found to be more aware of personal space rather than the male group. Of all the demographical characteristics – age and sex are two variables that are found to be very potent in determining personal space. Personality correlations of various kinds like dominance, warmth, extroversion/ introversion were found to be associated with personal space (Wiggins, 1979).
- ii. **Studies on Cultural Factors/ Influence** Hall (1959) pointed out that space utilization varies across cultures and is directed towards supporting spatial zones. The research of Hall provides a comprehensive descriptive analysis of various cultural factors in the use of space in the perspective of culture.
- iii. **Studies on Situational Factors** Many factors on personal space revolve around social aspects than the characteristics of physical settings. It has been found when the attraction between individuals is strong and friendly, the personal space can be reduced whereas when the bond is weak and unfriendly, space seems to expand. Altman (1987) did several studies on interpersonal relationships and personal space to confirm that when positive relationships are involved small personal space zones are preferred relative to those who are only acquaintances.

### 2.2.1.3 Applications of Personal Space Research

The research on personal space has provided sufficient evidence that an individuals' spatial needs can vary from person to person and from situation to situation. This can be used in cases of interior designing of the built environment and also helping people in creating their personal spaces with others keeping their preference of personal space in consideration. It can be applied to designing of homes, offices, schools, public spaces, etc.

#### Check Your Progress 1

1. Who was the first person to use the term 'personal space'?  
.....  
.....
2. What are the four zones that were proposed by Hall in relation to social interaction?  
.....  
.....
3. Which three methods are used to measure personal space?  
.....  
.....

## 2.2.2 Territoriality

The concept of territoriality was originally used to understand animal behavior. According to Fisher, Bell, and Baum (1984), “human territoriality can be viewed as a set of behaviors and cognitions, that an individual or group exhibits based on perceived ownership of physical space.” According to Rousseau (1950), a civilized society emerged when someone marked off a portion of land and claimed it as his ‘own,’ while others accepted it. This was also the start of our desire for our own land and territory. Territory can be defined as a stationary area which is visibly marked or restricted, defended, and used by someone. It is basically a piece of physical space that one owns on permanent basis as well as temporary basis.

Although, the concept of territoriality was originally used to study and understand animal behaviour but it is not restricted to only animals. Humans are also similar to animals when it comes to territorial behaviour or territoriality in their nature. Humans put up name plates outside their houses, build boundary walls, fences, etc. These all serve as a marking or assertion that this is their territory. Territorial behavior serves individual needs and motives which include controlling, personalizing, and defending an area (Nagar, 2004)

Territorial behavior refers to the way people use their space, communicate their ownership on their occupied areas. Territoriality is a set of attitudes and behaviors maintained by a person or a group that is based on the perception, attempted, or actual control of a physical location, item, or idea, and can include things like habitual occupation, defense, personalizing, and territory making.

Territory and personal space seem to be similar concepts but the major difference lies in the nature of these two. Personal space is more of an invisible and imaginary space or boundary that is subjective to every individual whereas territory is a visibly marked boundary.

### 2.2.2.1 Factors influencing Territoriality

Some factors that influence territoriality are discussed below:

1. **Gender** Gifford (1987), in his study on dormitories and beaches, demonstrated that when compared to females, males prefer larger territories. He attributed this preference of territory to be the result of socialization. These preferences for territoriality can be due to a result of internalization from a young age and being imbibed as gender roles set by the society and societal expectations.
2. **Role of Culture** Smith (1981) studied the behavior of people across different countries and the observed variations in the amount of territory across cultures. The study was conducted on French, Americans, and Germans. He concluded that even though there were similarities across these three nations but there were differences too like Germans had larger territories across cultures. Germans requiring larger territory than others can be attributed to their culture. Territory varies with population density and culture. This could also be due to the way a culture brings up an individual. It was also noted that across all the nations, males required more territory and groups of people required lesser territory than a couple or individual.
3. **Situational Factors** Territoriality varies from situation to situation. In a crowded bus or a market, the territory will be different, while in a library or at home the

territory demarcation will be different. When we discuss territory, it is also important to take the context, situation, etc., into consideration.

4. **Emotional Conflicts and Type of Territory** It is reasonable to assume that maximum disputes are likely to occur in regard to primary or secondary territory. However, this may not be the case always. In general, people accept our delineated areas or territories and rarely enter them. It is common for public territory to be taken or occupied but we cannot do anything about it because it does not belong to us. A stranger cannot organize an event in other person's garden but a stranger can easily take your preferred seat in the bus. But you just simply cannot create a fight over a seat always. This is why it is believed that acceptance of other people's territoriality is viewed as a beginning of a civilized society.

#### 2.2.2.2 Types of territories

Many psychologists have researched the concept of territoriality. The widely accepted types of territory are given by Altman and Chemers (1980) and they are as follows:

- i) **Primary territory** This type of territory is of prime significance in our lives. It refers to a place that we believe to be our own on a relatively permanent basis. We have complete control over it. It is a place with a psychological attachment. An example for primary territory may be a study room, bedroom, etc.
- ii) **Secondary territory** This territory is comparatively less important than the primary territory. It is only temporary. There is lesser amount of personalization in this type of territory as compared to primary territory. For example, classroom seat in school. Personalization is less compared to the primary territory.
- iii) **Public territory** These are more objective and do not belong to any individual rather anyone and everyone can access this type of territory. Hence, the psychological feelings of ownership are less.

Apart from these three basic types of territory described above, we can categorize territories in our own way as well with respect to our ideas, objects we own, our bodies and our interactions.

#### 2.2.2.3 Functions of different types of territory

Dittmar noted that territory not only serves a materialistic cost but also shapes our self-awareness. Porteous (1976) states that there are three satisfaction that we derive from such psychological ownership. They are:

- Control over space
- Personalization of space as an assertion of identity
- Stimulation which the space gives constantly when we are using that space modifying it and defining it

**Primary territory** serves the purpose of having a space to ourselves and being able to personalize it in our own way and be able to express ourselves. It also helps in providing a private space to enjoy solitude and intimate times.



**Secondary territory** serves the purpose of providing us with the sense of belongingness and safety as others who use the same space are viewed as people whom we can trust and feel safe.

**Public territory** serves the purpose of helping an individual to organize their space and mark a particular area temporarily. It is often the territory that has a potential scope of conflicts and criminal activities since these are not owned by anyone.

#### 2.2.2.4 Functions of Territorial Behavior

There are various functions that are served by territorial behaviour in humans but one of the major functions of territorial behaviour in humans is organizing (Taylor & Stough 1978; Edney, 1975).

**Table 2.1 Outline regarding organizing functions of human territories in everyday life given by Taylor in 1987 (Illustrated in *Environmental Psychology*, Nagar, D. 2006).**

For people in...	Organizing Functions of Territory
Public Places	Organizes space, provides an interpersonal distancing mechanism
Primary territories (e.g., bedroom)	Organizes space by giving the pace a sense of solitude, allows intimacy, and expression of personal identity.
Small face-to-face groups (e.g., family)	Clarify the social ecology of the group and facilitates group functioning, may provide home court advantage
Neighborhood and communities	Promotes an in-group who belong and can be trusted, differentiates them from out-group. In some urban areas, territorial control makes a space safe to use.

#### 2.2.2.5 Territoriality and Aggression

Aggression originates from the Latin word *aggressio* which means to attack. Aggression can also be referred to as a hostile, forceful behaviour or action that can be expressed physically, symbolically, or verbally. Humans often use aggression to defend themselves. Studying the invasion of territoriality and aggression is a tricky work as it is quite difficult to find ways that can be ethically valid but research has shown that these two are related. The more well established is one's territory, the stronger would be their response if someone invades their territory.

Aggressive behavior can also be attributed to the type of infringement. Gifford (1997) differentiated between three types of infringement:

1. Invasion of territory has been reacted with vengeance and war.
2. Violation of territory can lead to anger, aggression, and depression. The reaction to such types of violation is temporary and milder than invasion
3. Contamination of personal space leads to irritation, frustration, and verbal feuds.

An individual's reaction to these different types of infringements can also depend upon various other factors like the person who carried out the infringement, the type of territory that was infringed, etc.

## Check Your Progress 2

1. Which are the three basic types of territory?

.....  
.....

2. Mention the three factors that influence territoriality and territorial behaviour.

.....  
.....

3. What is the other name that is used to refer laboratory measures of territoriality?

.....  
.....

### 2.2.3 Crowding

Crowding and overcrowding are used interchangeably. The term ‘crowd’ refers to too many people at the same time in the same place. To understand the meaning of crowding, it needs to be separated from the concept of physical density. The physical density of a place refers to the number of people within the available place, if the number of people per unit is more, there will be more physical density and vice versa (Tiwari & Mathur, 2014). But crowding is not always experienced in the high-density situation. Physical density is an objective concept, crowding is a subjective feeling of cramped or lack of enough space. One may feel crowding in a situation where others are perfectly comfortable. However, physical density remains the same for all. Crowding is not only related to spatial factors but related to personal and social factors that also play a crucial role. Stokols (1976) states that “density is viewed as a necessary antecedent rather than a sufficient condition for crowding.” The concept of meaning of crowding varies between countries, regions, continents, and also depends on the social, cultural, geographical, and political factors (Clauson-Kaas, 1996). Research in crowding has been conducted at two levels. One is at the household level (measured in person per area of living space) and the second is area level (people per area of land).

Gove and Hughes (1983) distinguish between objective and subjective crowding. The former is the quantitative measurement of the number of persons per room in the household. The latter refers to one’s perception of not having enough space in the home. Objective crowding affects negatively the parent-child relationship and other social relationships. The basic assumption in subjective crowding is the lack of privacy which interferes with one’s mental health and behaviour. It is the felt experience of crowding and has a stronger relationship with mental health than objective crowding. Subjective crowding also has a greater effect on the mental health of women (Gove and Hughes, 1983).

Rubeck and Pandey (1991) also differentiate between social density and spatial density. Social density refers to the number of people interacting in the household and the spatial density refers to the floor space per person. The nature of interaction has a direct impact on one’s health, both mental and physical.

#### 2.2.3.1 Crowding: Nature and Characteristics

Proshansky, Ittelson & Rivlin (1970) stated that crowding is not simply a matter of density of people in a given space. The experience of being crowded depends to some

extent on the people crowding him, the activities going on, and the previous experiences involving some people in a similar situation. According to Desor (1972), being crowded means receiving excessive stimulation from social sources. Epstein and Baum (1978) defined crowding as an imbalance between people and available space.

The characteristics of crowding are as follows:

1. Crowding as a stressor situation and experience of crowding as a syndrome: Crowding causes stress, and the stress can be at the physical, psychological, and social levels.
2. Non-social vs social crowding: Non-social crowding refers to the feeling cramped due to the purely physical limitation of the space. Non-social crowding is basically about spatial restriction whereas social crowding is about other people in that space and our relationship with them. Thus, factors influencing social crowding are not only physical but psychological too.
3. Crowding vs undercrowding: Crowded spaces have a severe shortage of space. Undercrowded space refers to the excessive available space that is not required.
4. Psychological response to crowding: The psychological consequences of crowding are related to two basic assumptions related to crowding:
  - a. It involves the perception of insufficient control over the environment.
  - b. It increases the desire to put more space between oneself and others as a means of avoiding actual or anticipated interferences. This provides insights into the nature and determinants of perceived crowding. In general, overstimulation, behavioral constraints, and resources scarcities define the experience of crowding (Tiwari & Mathur, 2014)

The intensity of crowding depends on many factors:

- i) The kind of people around
- ii) The kind of social interaction with the situation

### 2.2.3.2 Individual differences to the reaction to crowding

Personality plays a crucial role in influencing how one reacts to crowding. People who are used to crowded settings are more crowding tolerant, on the other hand, people who are used to living in non-crowded places are usually more crowding intolerant. It has been found crowding tolerance and competition tolerance are much higher in the urban population than in rural populations. Again, people with larger personal space usually feel crowded easily while people with smaller personal space are more tolerant to crowding. Friedman in his book, *Crowding and Behaviour*, argued that crowding is neither good nor bad, he proposed the density-intensity theory of crowding where he suggests as density increases, our behavior changes. He also found males usually experience more stress in high density.

### 2.2.3.3 Cultural factors in Crowding

Cultural factors also play a role in deciding the effects of crowding. Although crowding is felt in all cultures, some cultures do inculcate better tolerance to it than the rest. For e.g., Asian cultures are more collectivistic but some of the Western cultures are more individualistic. Residents of high contact, collectivistic culture groups perceive their homes

as less crowded (Evans, Lepore and Allen, 2000). Research conducted in South East Asia (Ruback and Pandey, 1991; Fuller, et. al. 1993; Evans et al 1993) have concluded that residential density is positively related to psychological distress among people from collectivistic cultures.

#### 2.2.3.4 Psychological Effects of Crowding

There are both direct and indirect psychological effects of crowding. Lack of privacy because of crowding is associated with depression and other mental health problems. Crowding also leads to frustration which may in turn influence behavioural responses and the individual's ability to cope with the situation.

Tiwari & Mathur (2014) summarize the popular conception of effects of crowding that are found in animals and humans under 3 points:

- i) Physical effects—pollution, slums, diseases, illnesses, physiological breakdown, and malfunctions.
- ii) Social effects – higher aggression, crime, war, riots, social withdrawal, or abnormality
- iii) Psychological effects – aggression, withdrawal, lower performances, mental, illness, addiction, relieving quality of life.

#### Check Your Progress 3

1. Enlist the major characteristics of crowding.  
.....  
.....
2. Name the three types of infringement described by Gifford.  
.....  
.....
3. Describe the physical effects of crowding that are found in humans.  
.....  
.....

#### 2.2.3.5 CROWDING AND PERSONAL SPACE IN INDIA

In the Indian context, some research on personal space has been carried out in the University of Calcutta. It was found that people with psychosis larger personal space than people with neurosis and their normal counterparts. The study was conducted on prison inmates. In a crowded situation, the concept of personal space is lost in the Indian culture, and sometimes it is called a cultural habit. At the supermarket people push upright against each other, at the coffeehouse the person behind another person can even smell their hair. In countries like Japan, China and America, people rely more on individualistic values and identities. In India, people tend to have a sense of community.

Bhattacharya and Ghosh (2014) conducted a study on personal space and gender differences, their main aim was to study the personal space required by individuals between ages 21-30 years in the context of interaction with known people same-sex

and known person opposite sex. They administered the General Information Schedule and Interpersonal Comfortable Scale and found that female group required more personal space than that required by the male group especially in the context of interaction with the known person opposite sex. Personal judgments and levels of awareness may help the individuals to measure his/her personal space in the context of interaction with different persons in different situations.

In a study (Stane et al. 1981) conducted to intercorrelate 3 classes of personal space measures: naturalistic measure (persons did not know personal space being measured), two role-played measures (participants approach or were approached by a stimulus person), and Comfortable Interpersonal Distance Scale (CID), a series of 4 paper and pencil measure of personal space. Results showed significant correlations within each class of measurement but negligible correlations between classes. The lack of overlap in assessment techniques calls into question the validity of measures other than those obtained naturalistically.

---

## 2.3 PLACE ATTACHMENT

---

The human-environment relationship is a broad and multidimensional approach. Place attachment is one of the interesting concepts of this field of study that is investigated in many disciplines, and so has been defined in a variety of ways. Place attachment is defined as an evaluative dimension of place, it describes what does the place mean to people, rather than how much does it mean. Briefly, place attachment describes how bonding that occurs between people and their meaningful surroundings. A review of the concepts and theories related to this topic helps to form the theoretical framework. Place attachment is influenced by several factors and usually, research in this area integrates the perceptual, psychological, physical, and socio-cultural dimensions of people and place. Considering dimensions of place attachment has always been beneficial for investigating the factors that influence people-place relationships. However, place attachment cooperates a positive role in individuals' lives and their care of the place. People who feel an emotional attachment to a place are more active to preserve the place.

The relationship between people and places are characterized by cognition and affection respectively (Piccoli, 2010). Just like people form emotional bonds with one another, they do so with a place also. Place attachment is the emotional bond between people and place. It arises as a result of the cultivation of meaning and artifacts associated with created spaces. Our city, our home, or even our dining table are examples of place attachment. It is usually due to strong association with that place, the more time we have spent in a particular place, the more attached we are to it. The attachment may be due to feelings, memories, and interpretations evoked by that place. Place identity and place image in general, both are two different things. Image may well differ from person to person but for an individual who is attached to a place, his/her image to the place will always be positive.

### 2.3.1 FACTORS INFLUENCING PLACE ATTACHMENT

Place attachment is affected by socio-demographic characteristics of people, environmental experiences, including people's type of involvement with the place, and degree of familiarity with place, people's expertise/knowledge about the place, religion, and culture, place satisfaction, and the place itself. Schnell and Gifford (2009) in an

interesting study proposed a three-dimensional structure of place attachment as illustrated in the figure below:

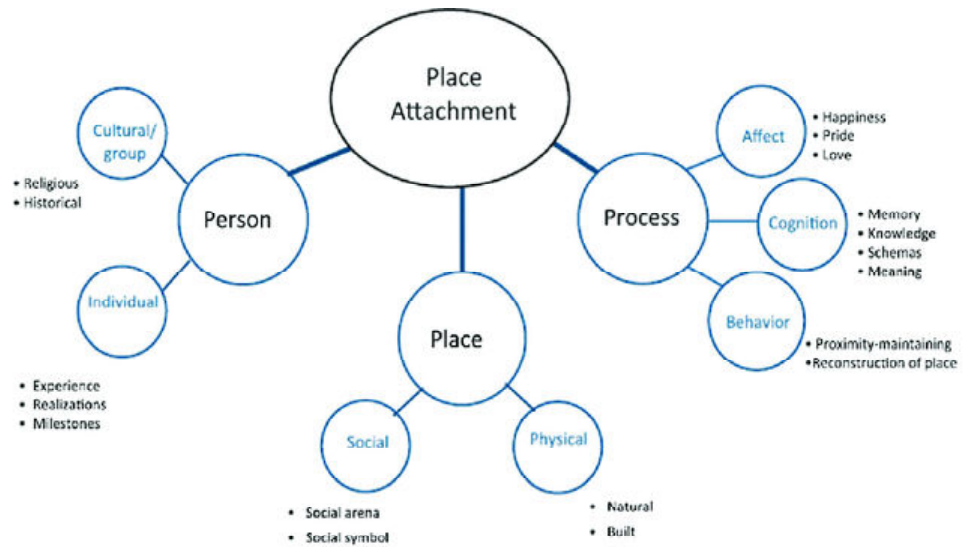


Figure 2.2 The Tripartite Model of Place Attachment

It shows that place attachment is a multi-dimensional concept. It shows that the person, psychological process, and places are dimensions. They explained that person is the first dimension, and said that place attachment can happen both at the individual level and group level based on the framework of the psychological process is the second dimension, which includes the affect, cognition, and behavior as manifested in the attachment. The object of the attachment is the third dimension which includes place characteristics that is the nature of the place.

### 2.3.2 PSYCHOLOGICAL DIMENSIONS OF PLACE ATTACHMENT

Functional and emotional attachments are two types of place attachment that are identified by Williams et. al (1992). Functional attachment or placed dependence states the opportunities that are set for the fulfillment of specific goals or activities(Nazamin, 2012). Emotional or symbolic attachment refers to the identity, importance of what the setting symbolizes. This symbolic meaning is very personal or shared(Nazamin, 2012).

### 2.3.3 MEASUREMENTS OF PLACE ATTACHMENT

During the last decade, place attachment has garnered substantial theoretical research. Bonnes and Secchiaroli (1995) suggested that place attachment puts forth a positive emotional bond between the public and the places because of the satisfaction of people with the evaluations and the identification with a specific place. Henceforth, the quality of the place can be measured based upon the evaluation and perception of the place by the users (Lewicka, 2010). These days, scholars from different fields have tried to discover place-based concepts empirically. In this scenario, most of the aforementioned research works have focused on measuring the strength of attachment.

Lalli (1992) differentiated attachment studies on the phenomenological and positivistic methods. Positivistic method of approach can be recognized by researcher-defined variables, traditional hypothesis testing, and quantitative methods. In this case, familiarity with the place, length of association, place dependence, place satisfaction, place identity, sense of belonging, and place affective are the variables that are used to measure place

attachment (Stokols and Shumaker, 1981, Proshansky et al., 1995, Williams and Roggenbuck, 1989, Shamai, 1991, Steadman, 2003, Raymond et al., 2010). Williams and Roggenbuck (1989) created a series of Likert-scaled statements that were specifically designed to use the response format from strongly agree to strongly disagree to measure the theoretical dimensions of place attachment and related constructs such as place dependence and place identity. The measurement is based upon individual experiences and feelings related to the place.

In contrast to positivistic approaches, phenomenological methods focus on the meanings and experiences of place via a descriptive and qualitative discovery of things in their own terms (Manzo, 2003, Jorgensen and Stedman, 2001, Lalli, 1992). In this regard, Manzo (2003) argued the phenomenology in architecture explores the ontological character of humankind and considers ‘being-in-the-world as an indispensable part of continuation.

In recent years, many researchers focused on something more than mere measurement of public attachment by assessing:

1. People’s feelings and components of the place that absorb their attachment (Williams and Stewart, 1988, Steadman, 2003);
2. Influencing factors which could form place attachment, e.g. physical components of the place, socio-cultural relationships within the environment (Kaltenborn, 1997, Steadman, 2003), and environmental behaviours (Walker and Chapman, 2003, Steadman, 2003) or activities (Bricker and Kerstetter, 2000); and
3. The impact of place attachment on people’s environmental satisfaction, attitudes (Bogac, 2009, Lewicka, 2005), intention towards certain places (Steadman, 2003, Walker, and Chapman, 2003.) In this regard, people’s environmental attitude could be evaluated through measuring their reactions in terms of environmental emotion, cognition, and activity (Jorgensen and Stedman, 2001).

---

## 2.4 PLACE IDENTITY AND PLACE DEPENDENCE

---

Place attachment is one dimension of the person–place relationship that can provide information regarding visitors and their connection to particular public lands. Place attachment has been described as “the emotional link formed by an individual to a physical site that has been given meaning through interaction” (Milligan 1998:2). It is generally described as having at least two dimensions: place identity and place dependence.

Place identity refers to the symbolic meaning a particular place has to an individual (Kyle et al. 2005). People’s place identity is individuals’ strong emotional bonds to particular places or environments (Fresque-Baxter and Armitage, 2012; Zimmerbauer et al., 2012; Melnychuk and Gnatiuk, 2018). Place identity according to Proshansky is a dimension of the self-concerning the physical environment. He defines it as the cognitive connection between self and the physical environment. He defines place identity as “those dimensions of self that define the individual’s identity with the physical environment utilizing a complex pattern of conscious and unconscious ideals, beliefs, feelings, values, goals, behavioral tendencies, and skills relevant to this environment”.

Place dependence is conceptualized as the opportunities a setting provides for goal and activity needs (Stokols and Schumaker 1981). Stokols and Shumaker (1981) defined place dependence as the perceived strength of association between a person and specific places. Based on Schreyer et. al. (1981) place dependence refers to connection-based specifically on activities that take place in a setting, reflecting the importance of a place in providing conditions that support and intended use. Smaldone (2005) asserted that place dependence—with a person’s consideration of two things—the quality of the current place and quality of other substitute places comparable to the current place. It concerns the functional and utilitarian aspects of the place attachment.

**Check Your Progress 4**

1. What are the two major dimensions of place attachment?

.....  
.....

2. Explain three-dimensional structure of place attachment.

.....  
.....

3. Define place identity.

.....  
.....

---

## 2.5 THEORETICAL MODELS OF HUMAN ENVIRONMENT INTERACTION

---

Human environment interaction can be described as the connections between human beings and the entire ecological unit. The human social systems and the environment are intricate, adaptive systems. They are intricate since ecological units and human social systems have a lot of elements and correlations between them. Adaptiveness is the feedback system that supports survival in continuously changing surroundings.

### 2.5.1 Overload Models

Stimulus overload models are rooted in the sociological theories of urban life development by Simmel (1950) and Wirth (1939). According to stimulus overload models, people experience stimulus overload in densely populated cities. The diversity, size, and density of most urban populations result in the exposure of city residence to excessive levels of physical and social stimulation. This surfeit of stimulation as reflected in the congestion, is arousing from overloaded channels of transportation and communication, is linked to several consequences at the community level: a cultural lifestyle of impatience, aloofness, social isolation, and elevated levels of physiological and psychological pathology. Milgram (1970) did an extension of the earlier work, defining overload as a situation in which the amount and rate of environmental inputs impinging on an organism exceed its capacity to cope with them. The central message of Milgram’s study is that the individual must enact specific behavioral adaptations under conditions of overload if the individual is to operate effectively and survive.



## 2.5.2 Behavioral Constraint Models

The behavioral constraint perspective derives largely from Brehm's theory of psychological reactance and Sommer's (1969) conceptualization of personal space. Brehm's theory deals with situations in which an individual realizes that their freedom to perform a particular behavior has been threatened or eliminated. Perceived limitation of behavioral freedom should provoke psychological reactance, a motivational state involving feelings of preemption and infringement and resulting in behavior directed towards the re-establishment of the threatened freedom.

Somewhat related to the construct of reactance is Sommer's notion of personal space, an "invisible emotionally charged zone" surrounding each person into which intruders may not come. Personal space presupposes the existence of individual needs and situational norms which establish the bounds of comfortable interaction distance. To the extent that spatial needs and norms are violated, the reactance-like pattern of emotional distress should arise, followed by behavioral adjustments aimed at preserving one's personal space. According to this model, the experience of crowding develops through an interaction of physical, social, and personal variables, all of which combine to sensitize the individual to the actual potential constraints of limited space.

## 2.5.3 Ecological Adaptation Models

The ecological model stems from Barker's (1968) application of ecological theory to an analysis of human social behavior. The ecological perspective which focuses on the collective adaptation of the organism to its environment was first articulated in the late 19<sup>th</sup> century by a biologist who emphasized the interdependence of plants and animal groups occupying the same habitat. Barker's research in the area of ecological psychology represents an extension of ecological principles from the macro or community level of analysis to a consideration of the analysis of the micro, social phenomenon. The shift in emphasis is evident in Barker's concept of behavioral setting, an environment behavioral unit characterized by cyclical patterns of activity which occur within specific time intervals and spatial boundaries. Examples of behavior settings are dormitory lounges, shopping centers, and football games. Within Barker's framework, the ecology of the total community remains an important issue but is approached in terms of the dynamics of multiple behavior settings which together comprise a larger environment.

---

## 2.6 SUMMARY

---

To sum up what we have learnt in this unit, here is a quick recap:

- The human social system and the entire ecological system are correlated. The environment is influenced by human nature which consists of traits and dispositions.
- Personal space is the immediate surrounding of someone, encroachment of which can make one feel threatened or uncomfortable. It can be measured with the help of simulation method, laboratory method, and field naturalistic or observation method.
- Territoriality is a set of behaviors and cognitions, that an individual or group exhibits based on perceived ownership of physical space. Primary, secondary and public territory are the different types of territories.

- Crowding is a subjective feeling of cramped or lack of enough space. It is different from physical density which refers to the number of people within the available place.
- Place attachment describes how bonding that occurs between people and their meaningful surroundings
- Measurement techniques of place attachment for better understanding of the concept and apply that knowledge to other arenas.
- Place identity and place dependence concepts that are quite important in order to understand place attachment as a whole concept. Place identity refers to the symbolic meaning a particular place has to an individual. Place dependence is the perceived strength of association between a person and specific places.
- Overload models, behavioural constraint models, and ecological adaptation models help to understand the interaction that takes place between humans and their environment.

---

## 2.7 REVIEW QUESTIONS

---

1. Briefly describe the four personal zones as posited by E. Hall.
2. Which of the following are the major types of studies conducted to understand personal space?
  - a. Studies of personal factors
  - b. Studies on contextual factors
  - c. Studies on cultural factors
  - d. All of the above
3. Who among the following demonstrated the factors of gender that largely influences how an individual depicts a territorial behaviour?
  - a. Gifford
  - b. Smith
  - c. Blum
  - d. Altman
4. Which of the following are considered to be the major types of territory?
  - a. Primary
  - b. Secondary
  - c. Public
  - d. All of the above
5. What are the major functions of an individual's territory as stated by Porteous?
6. What does a phenomenological approach exactly refer to with respect to measurement of place attachment?

---

## 2.8 REFERENCES AND FURTHER READING

---

- Bell, P.A., Greene, T.C., Fisher, J.D. and Baum, A. (2001). *Environmental Psychology, Fifth Edition*, Harcourt College Publishers.
- Bonnes, M. & Secchiaroli, G. (1995). *Environmental Psychology - A Psycho-Social Introduction*, Sage Publication.
- Cassidy, T. (1997). *Environmental Psychology*, Psychology Press.
- Evans, G., Lepore, S.G. & Allen, K.M. (2000). Cross-Cultural Differences in Tolerance for Crowding: Fact or Fiction? *Journal of Personality and Social Psychology* 79(2):204-10 DOI: 10.1037/0022-3514.79.2.204 [https://www.researchgate.net/publication/12371846\\_Cross-Cultural\\_Differences\\_in\\_Tolerance\\_for\\_Crowding\\_Fact](https://www.researchgate.net/publication/12371846_Cross-Cultural_Differences_in_Tolerance_for_Crowding_Fact)
- Gifford R. (2014). Environmental psychology matters. *Annual review of psychology*, 65, 541–579. <https://doi.org/10.1146/annurev-psych-010213-115048>
- Hayduk L. A. (1978). Personal space: an evaluative and orienting overview. *Psychol. Bull.* 85(1) 117–134. 10.1037/0033-2909.85.1.117
- Hall, E., Hidaka, T. tr., Sato, N. tr., *The hidden dimension*, Tokyo, 1986.
- Harmon, L.K., Zinn, H.C. & Gleason, M. (2006) *Place Identity, Place Dependence, and Place-Based Affect: Examining Their Relationship to Participation in Educational and Interpretive Programs* Isle Royale National Park. The 2005 George Wright Society Conference Proceedings.
- Commission on Ecosystem Management, IUCN. <https://www.iucn.org/commissions/commission-ecosystem-management/our-work/cems-thematic-groups/cultural-practices-and-ecosystem-management>
- Clauson-Kaas, Jes, et al. (1996). Urban health: human settlement indicators of crowding. *Third World Planning Review*, 18 (3), pp.349-63.
- Gove, Walter R. and Hughes, Michael (1983). *Overcrowding in the Household: An Analysis of Determinants and Effects*. Toronto and New York: Academic Press.
- Malhotra, N. K. (2007). *Environmental psychology: Principles and practices*. Sumit Enterprises. New Delhi.
- Nagar, D. (2006). *Environmental Psychology*, Concept Publishing Company. New Delhi.
- Nishihara, R., & Okubo, M. (2015). A study on personal space in virtual space based on personality. *Procedia Manufacturing*, 3, 2183–2190. <https://doi.org/10.1016/j.promfg.2015.07.359>
- Ruback, R.B. and Pandey, J. (1991). Crowding, perceived control, and relative power: an analysis of households in India. *Journal of Applied Social Psychology*, 21, pp. 351-44.
- Stokols, D. (1976). The Experience of Crowding in Primary and Secondary Environments. *Environment and Behaviour*, 8(1). DOI 10.1177/001391657600800104

---

## 2.9 ADDITIONAL ONLINE RESOURCES

---

- Personal space: <https://www.youtube.com/watch?v=pw3FZ3xOBVo>
- Territoriality: <https://www.youtube.com/watch?v=pw3FZ3xOBVo>
- Place identity: <https://www.youtube.com/watch?v=pw3FZ3xOBVo>
- Human-environmentinteraction:  
<https://www.youtube.com/watch?v=pw3FZ3xOBVo><https://www.youtube.com/watch?v=pw3FZ3xOBVo>
- Personal Space  
[https://www.researchgate.net/publication/283960340\\_A\\_Study\\_on\\_Personal\\_Space\\_in\\_Virtual\\_Space\\_based\\_on\\_Personality](https://www.researchgate.net/publication/283960340_A_Study_on_Personal_Space_in_Virtual_Space_based_on_Personality)  
<https://doi.org/10.1016/j.promfg.2015.07.359>
- Human Environmental Interaction  
<https://www.conserve-energy-future.com/human-environmental-interaction-examples.php>
- Effects of Crowding  
Effects of Crowding.doc ([psychotron.org.uk](http://psychotron.org.uk))

### Answers to Review Question

2. d; 3. a; 4. d