CHAPTER 6: DISCUSSION AND IMPLICATION

This chapter discusses the dissertation’s results in the context of previous studies and theoretical explanations in environmental perception and assessment research, as well as the practical and research implications of this dissertation. The chapter is organized into two sections. Section one discusses the results in the context of previous research and theoretical explanations. Section two provides implications for future developments and improvements of existing shopping environments and future research opportunities.

I. Discussion of the Results

As a contribution to the body of knowledge in the environmental perception and assessment field, the results of this dissertation are consistent with findings from previous studies; the findings also support theoretical explanations in the field. Results are discussed in two contexts: in connection to previous findings and in connection to theoretical explanations in environmental perception and assessment research. Each of these aspects is discussed in detail below.

1. Connection to Previous Findings

Each of the above findings is discussed with their connection to the findings from previous research. Previous findings in natural settings are reviewed by Kaplan and Kaplan (1995), and findings in an urban context are reviewed by Nasar (1997). The discussions are organized by the topics of the findings as how people perceive existing shopping environments, the preferred characteristics of shopping environments, the relationship between preference and perceived importance of shopping attributes, and, finally, the differences in preferences by respondents’ shopping behaviors and socio-economic backgrounds. Each of these aspects is discussed below.

How People Perceive Existing Shopping Environments

The results show that Thai people are able to distinguish between traditional and modern environments. This result is supported by people's discretion between the set of scenes in traditional and modern dimensions. This result can be explained by referring to the study by Rapoport (1990), who found that cultural information about an environment is encoded in
people's minds in the form of a schema or prototype. People who live in the culture can decode the information and recognize these environments using a schema or prototype.

Prototype and schema of the environments also guide people's behaviors in these environments, as well as their reactions and evaluation of the environments (Nasar, 1997; Rapoport, 1990). Type and style of the environment have been found perceivable by people in previous studies; they often appear as categories in dimensional analysis (Kaplan & Kaplan, 1995). Nasar (1997) states that styles such as old and new, and high and popular have been found to be distinguishable and influencing preferences.

People are also able to distinguish subtypes by different characteristics within the environmental types. Subtypes are distinguished by spatial configurations, physical contents, and environmental conditions of the scenes within the type. Spatial configuration and physical content are significant categories that are commonly found in previous studies (Kaplan & Kaplan, 1995). Spatial configurations of the subtypes of the environments differ by qualities such as: open-closed, wide-narrow, and deep-shallow. These characteristics are consistent with the findings from previous preference studies (Kaplan & Kaplan, 1995).

Small and narrow-space outdoor markets that include vegetation emerge as a type. The amount of vegetation is recognized over type and becomes more important than the differences between subtypes. This happens in the case of the Outdoor Markets with Vegetation dimension, which is comprised of scenes depicting both traditional and outdoor modern environments with relatively narrow spaces and a fairly high level of vegetation. Vegetation is found to be a significant physical content in perception and preference studies of urban context (Kaplan & Kaplan, 1995; Nasar, 1997). The influence of vegetation on preference is further discussed in the following section.

**Preferred Characteristics of Shopping Environments**

Three major topics consistent with previous research in the field are discussed. The topics include type of environments, major categories, and human influence. Each of the topics is discussed below.

**Type of Environment**

Type is the first environmental factor that influences preference. When people view a scene, they match it with their prototype or schema and evaluate the scene according to the type. For
example, when people see a scene from a traditional market, they match the scene with the prototype of a traditional market in their minds, and evaluate the scene in association with their attitudes toward the traditional market, which can be either positive or negative. This behavior is proved by the fact that the preference means of scenes from the same type are in a relatively narrow range, and the range of preference means of each type differs from another. People also associate the positive and negative aspects of the environmental type, which may not be visible, in their evaluation. The preference means of the scenes in the subtype that has more positive characteristics are higher than those with more negative characteristics. This result shows that people, after evaluating the type, also adjust their evaluation according to positive or negative characteristics, for instance, organization, cleanliness, and temperature, associated with the subtype they perceive and recognize.

This finding is consistent with previous studies that found that different type of environments received different preferences. This is most evident in the natural versus urban environment, and is also evident in the studies dealing with different types of urban environments (Kaplan & Kaplan, 1995), and different styles of buildings such as popular versus high styles (Nasar, 1997; Nasar & Kang, 1999).

**Major Categories**

The major categories that normally appear in dimensional analysis of previous studies are spatial configuration and content-based categories. These major categories or dimensions have been found to influence preference (Kaplan & Kaplan, 1995). Four of the dimensions in this study are spatial configuration-based, except for the Outdoor Markets with Vegetation dimension, which is a content-based dimension. Spatial configurations such as spacious and well-ordered spaces are highly preferred. This finding is consistent with the previous findings across different types of environments. Spatial categories that possess qualities such as spaciousness and openness always received high preference in previous research (Kaplan & Kaplan, 1995). Similarly, categories that include the characteristics of orderliness and well-organized spaces are also highly preferred (Kaplan & Kaplan, 1995).

The content-based category, Outdoor Markets with Vegetation, which is dominated by vegetation and sitting areas, is preferred more than other environments with similar characteristics. Contents such as vegetation, furniture, and fresh fruit products are also highly preferred in other preference dimensions. This finding is consistent with the results of previous studies that found that specific contents that appear in the scenes, positively or negatively, influence preference (Kaplan &
Kaplan, 1995). Moreover, vegetation always emerges as a category in urban context and induces high preference (Kaplan & Kaplan, 1995; Nasar, 1997). The opportunity for recreation and socialization presented by contents such as seats, cafés, and sitting areas is related to the concept of affordance (Gibson, 1979). Gibson (1979) states that people see the environment as what the environment affords; in other words, what they can do with or in the environments (Kaplan & Kaplan, 1983). Vegetation is found to provide restorative value (Kaplan & Kaplan, 1995), which is perceived as providing and supporting opportunities for resting and recreation, when vegetation is provided together with sitting areas and furniture. Preference for vegetation is also found to relate to evolutionary perspective (Appleton, 1975; Kaplan & Kaplan, 1995). The interactive effect of these factors has also been observed in previous studies of traditional and modern public spaces (Lennard & Lennard, 1984; Whyte, 1980).

Although two types of major categories were found in dimensional analysis, respondents’ frequent comments on the scenes resulted in more detailed categorization. The resulted categories are spatial configuration, organization and display, physical content, atmospheric character, environmental condition, convenience, and overall assessments. These categories indicate that when environments are viewed at a close distance, and are familiar to the respondents, more detailed categories, especially those that are referred to by Rapoport (1990) as semi-fixed and non-fixed features, were largely noticed by the respondents. The organization of physical elements, environmental condition, and atmospheric character, which might have always been included within the major categories were brought up to attention. Moreover, the perceptions of physical characteristics resulted in comments related to emotional characters under atmospheric character categories and comments related to evaluation under overall assessment categories.

**Human Influence**

Another important aspect that influences preference for shopping environments is maintenance, which is a type of human influence (Nasar, 1997). Better maintenance results in clean and better-organized space, which received high preference in both types of shopping environments. Maintenance has been found to directly influence preference in previous studies of shopping environments (Woods, 1995) and urban context (Herzog, 1995; Herzog & Gale, 1996; Herzog & Shier, 2000). Maintenance is described as a positive human influence on both the urban and natural context that influences higher preference (Kaplan & Kaplan, 1995; Nasar, 1997).
**Relationship between Preference and Perceived Importance of Shopping Attributes**

Finding relationships between preference for the environments and other variables such as purposes for a shopping trip is not normally conducted in a preference study. Hanyu (1997; 2000) has provided the approach of identifying relationships between two different sets of variables such as different aspects of evaluation and perception of the environments. Recreational shopping and value shopping are found to be important relationships in preference for shopping environments and shopping attributes. Recreational and value shopping have been viewed by Gerhard (1998) as relating to major purposes in selecting shopping environments and behaviors in the shopping environments. These purposes influence preference, resulting in the way that people select the places to go shopping and what they do in those shopping places (Gerhard, 1998). The purpose of an activity has also been found to influence preference for the environments (Nasar, 1997). Nasar (1997) indicates, from previous preference studies, that preference has been found to vary by respondents who have different purposes in evaluating the environments.

**Differences in Preferences by Respondents' Shopping Behaviors and Socio-Economic Backgrounds**

Group difference has been found to be a significant factor in preference studies in natural context (Kaplan & Kaplan, 1995) and urban design context (Nasar, 1997). In this dissertation, significant group differences are found among respondents with different shopping behaviors and socio-economic backgrounds. Shopping behaviors influence preference for shopping environments by group shopping habits, time and duration of shopping trip, and shopping companion. In previous studies, people's behaviors such as purpose, level of exposure to the environments, and involvement with the environments have been found to influence preference. Respondents who have different levels of contact and involvement in environments are found to vary in preference for different types of natural environments (Miller, 1984). This result is related to purposes of involvement and familiarity with the environments. Both purpose and familiarity with the environments have been found to influence preference (Kaplan & Kaplan, 1995; Nasar, 1997).

Socio-economic backgrounds are found to influence preference for shopping environments. Age and income are dominant variables among the group of significant variables. Age has also been found to influence preference across the environments in previous studies (Kaplan & Kaplan, 1995; Miller, 1984). These differences can be attributed to developmental processes in childhood, such as found in Herzog, Herbert, Kaplan, & Cook (2000); familiarity with the
environments such as several works reviewed by Kaplan and Kaplan (1995); and, particularly, familiarity with native cultures and traditions, as found by Okada and Togashi (1992).

The significant differences in preference by other socio-economic backgrounds are income, education, and family status. This group of variables is found to influence preference by the economic status of households. When families have better economic status (more income and less dependents), they prefer places that appear to offer more recreational and less value shopping. On the contrary, when they have lower economic status (lower income and more dependents) they prefer places that appear to offer more value than recreational shopping. Income and related variables have been found to influence preference in previous studies in natural environments (Kaplan & Kaplan, 1995) and in an urban context (Nasar, 1997). Nasar and Kang (1999) found that variables related to income level, such as education and occupation, influence preference for different styles of houses.

Socio-economic backgrounds are also referred to in previous studies as subculture and taste culture. These differences by age, income, education, and occupation are found to influence preference in previous studies as subculture (Kaplan & Kaplan, 1995) and taste culture (Nasar & Kang, 1999). Both sub-culture and taste have been found to influence preference in both natural and urban settings.

Although there are significant differences in preferences for different dimensions of shopping environments, there is also similarity. The order of preferences for different dimensions of shopping environments among different subgroups is similar across several variables. This suggests that while there are differences in magnitudes of preference; however, there is a similar pattern among groups. The most consistent orders are that the Typical Modern Malls dimension tends be in the most preferred, while the Traditional Outdoor Markets dimension tend to be the least preferred. The middle ranks vary among Traditional Fresh Markets, Outdoor Markets with Vegetation, and Modern Malls with Exposed Products dimensions. The comparison of magnitudes and patterns of preference means among groups have been used by Kaplan and Herbert (1987) to compare preference between cross-cultural groups. Similar to this dissertation, the results showed several significant differences in magnitudes; however, similarity was also found in pattern and order of preference means. This also indicates that while the respondents’ backgrounds can influence preference for shopping environments, the variation is caused the most by different environments. This fact is also support by the meta-analysis of various studies by Stamps (1994).
2. Connection to Theoretical Explanations in Environmental Perception and Assessment Research

The results are not only consistent with the results from previous studies, but are also consistent with the theoretical explanations normally used to explain results in the environmental perception and assessment field. The related theoretical explanations discussed below are the preference framework (Kaplan & Kaplan, 1983), Lynch's concept of imageability (Lynch, 1960), and Gibson's concept of affordance (Gibson, 1979).

Preference Framework and Other Related Theories

Preference framework, introduced by Kaplan and Kaplan (1983), is widely used in preference studies as theoretical explanations for the results. Parallel to Kaplan and Kaplan's work, Nasar (1997) also discusses some variables related to Kaplan and Kaplan's framework. Some of these variables are also discussed below in relation to the preference framework. Lynch's imageability is relevant for discussion of the perceived characteristics of shopping environments, and is therefore included in the following discussions.

Understanding the Environments

The components of preference framework that aid understanding of the environments are coherence and legibility. Coherence increases preference by the way that elements hang together, resulting in better understanding of the immediate scene, while legibility increases preference by the perceived potential for finding one’s way around the scene in a future timeframe (Kaplan & Kaplan, 1983).

The highly preferred neat organization and display of physical elements and well-ordered spaces in shopping environments is related to legibility and coherence. The differences in the organization of elements make a difference in preference by the level of coherence as well as legibility. The neat displays of products and other small elements in these spaces result in high coherence and high preference. The neat organizations of structures and large elements in these spaces result in clear definition between circulation and product displays, thus increasing legibility as well as preference.

Another environmental factor that influences preference is environmental condition, such as crowdedness. Crowded space is illegible, while fewer people present in a scene increases the level of legibility, since spaces and paths are clearly seen. Both higher coherence and legibility
result in higher preference for the environments. Coherence and legibility are sometimes used synonymously with other variables such as order, fittingness, congruity, and clarity, which have similar positive effects on preference (Nasar, 1997).

Another relevant theory related to understanding of environments is imageability, which is defined as the ability to form a cognitive map (Lynch, 1960). Imageability is similar to and sometime used synonymously with legibility. Imageability is derived from the system of elements-paths, nodes, districts, edges, and landmarks-that help people create a cognitive map or mental representation of the place. Imageability helps people remember and find their way in the environment. Imageability can help people become familiarize with and better understand the environment, which in turn influences preference. Imageability is apparent in the spaces of modern malls where different elements such as nodes and landmarks are distinguished from regular walkways. However, traditional shopping environments generally lack imageability, resulting in difficulty in wayfinding and making a cognitive map of the large-scale environments.

**Involvement with the Environments**

The components of preference framework that aid involvement with the environment are complexity and mystery. Complexity increases involvement via a number of different elements, which require attention and time to view and comprehend. Mystery increases involvement via the promise of discovering more information while moving through the environments. Increasing involvement results in higher preference (Kaplan & Kaplan, 1983).

Generally, most of the scenes possess a relatively high level of complexity; therefore, complexity does not contribute to difference in preference for shopping environments. However, there are differences in the level of mystery. The opportunity to see and wander further, a reason for high preference in modern mall environments, is related to the level of mystery. The well-connected spaces and the partially blocked views in the modern mall, especially in the central area, show a high level of mystery, thus receiving high preference.

Other opportunities that are related to involvement are the opportunities for recreation and socialization presented by the appearance of furniture, sittings areas, and cafés. These opportunities are related to the environmental affordance that Kaplan and Kaplan described as what people can do in the environments (Kaplan & Kaplan, 1983). This concept is extended from Gibson (1979), who defines affordance as what one can do with an object or element of the environment. Affordance in shopping environments can be viewed as multilevel. The first level
is the overall shopping purpose of the shopping place that affords several activities for shoppers via provided facilities such as shops, entertainment centers, and movie theaters. The second level occurs when a specific space, for example a sitting area or café with decoration, affords the possibility to socialize and rest. The third level occurs with a specific element such as when a bench or chair affords the possibility to sit down. Affordance is also found relevant in shopping environment in previous study (Woods, 1995).

**Conclusion**

The findings of this dissertation support the results from the previous studies and the theoretical explanations used in the field of environmental perception and assessment research. Although, the setting of this dissertation differs from the majority of the previous studies, the results show consistencies. Since the setting is a near and familiar type of environment, more of the organization of physical elements or semi-fixed elements and environmental conditions or non-fixed elements and invisible qualities, were brought into attention by the respondent’s comments. The significant factors, environmental, shopping, and respondents’ background factors, influencing preference are consistent with the findings from previous studies. The significant differences of preferences by shopping behaviors and socio-economic backgrounds are also consistent with the differences between groups identified in previous studies on a variety of settings. The preferred characteristics found in this dissertation are related to the level of coherence, complexity, legibility or imageability, mystery, and the concept of affordance. The consistencies of the findings of this dissertation contribute to the body of knowledge in the environmental perception and assessment field.

**III. Implications**

This section discusses the practical and research implications of this dissertation for identifying important aspects of traditional shopping environments. Practical implications include strategies for future developments of shopping environments, the strategies for improvements of existing shopping environments, and the overall contribution to the environmental design and planning field. Research implications include the contribution to the environmental perception and assessment research field, the limitations of this dissertation, and the opportunities for future research. Each of these is discussed in more detail below.
1. Practical Implications

Practical implications are provided to fulfill the last objective, which is to provide strategies for future developments as well as existing shopping environments. The answers to the last research question provide the required information.

Question 6. Based on the above findings, what are logical strategies for designing and renovating shopping environments that will be more preferred by people?

In response to this question, the results of this dissertation have implications for two strategies of design, planning, and management of shopping environments, new shopping environments and existing traditional shopping environments. Since vernacular environments, such as the traditional Thai market place, are dynamic and evolving, the goal should not be to preserve them in a static form, but rather to manage their evolution in order to maintain their cultural relevance. Results of the preference survey, both in terms of what people were reacting to and why, provide a basis for preservation management strategies. These management strategies can take two forms: 1) for new development of shopping environments, and 2) for enhancing existing traditional Thai marketplaces. The results of this research have implications for both types of place, which are discussed in more detail below.

Implications for Future Development of Shopping Environments

To fulfill shoppers’ preference for shopping environments, new shopping environments should include the preferred characteristics of the Typical Modern Malls dimension, which are the most preferred dimension identified by this dissertation. These preferred characteristics include:

- Spacious and visually well-connected spaces providing opportunities for shoppers to wander around. This aspect includes common spaces with landscape and furniture serving as public space for shoppers. Spacious place that offer possibilities to wander, recreate, and socialized increase preference and potential face-to-face interaction.

- Spatial configuration that provides a sense of mystery—that is, spacious arrangements of products through which shoppers can move to explore and discover the products being offered for sale.

- A clean, well-organized appearance, including tidy product displays with well-defined and reasonably spacious circulation ways. Well-maintained spaces increase a sense of security
and create a pleasing overall atmospheric character as well as preference. Well-defined circulation and product displays can increase legibility and preference.

- Opportunities for resting and socializing, including benches, sitting areas, and eating areas. The availability of the above elements helps increase affordance in the place as well as preference. The place can offer shoppers more things to do and more reasons to go into the space.

- Vegetation to increase aesthetic quality and lower temperatures, particularly in outdoor environments. Vegetation is always a preferred feature in any environment. Together with sitting areas and furniture, vegetation can increase opportunities for resting, recreation, and socialization, as well as preference.

In addition to the preferred characteristics, the new development should contribute in maintaining the characteristics of a traditional marketplace. As a means of preserving existing culture and traditions, new developments should experiment with including the characteristics of traditional marketplaces, which are:

- Areas for more traditional style market. An area in the place can be dedicated to traditional style marketplace.

- Stall and vendors-style small retailers providing specialty and local products should be included within the new shopping environment.

- Fresh markets and specialty booths that provide colorful and high quality fresh products, which could complement stores commonly found in modern shopping environments.

This area will also function as an anchor attracting customers with a large number of small specialty stores. In addition to preserving Thai culture, traditional style market areas could add value, color, and a lively vitality to the more sterile modern shopping environment. The new shopping environment can also appeal to shoppers who prefer traditional characteristics of shopping environments.

**Implications for Improvements of Existing Shopping Environments**

The results of this dissertation indicate that traditional Thai shopping environments were less preferred in most cases than modern Western-style shopping malls. If traditional style Thai marketplaces are to survive economically, their appeal must be enhanced. This goal can be
achieved in two ways: first, by improving some of the existing negative characteristics that are commonly associated with traditional market environments; and second, by including features that will make them more responsive to a broader spectrum of Thai shoppers. Each of these suggestions is discussed in more detail below.

This study found that traditional Thai marketplaces often lack opportunities for socialization and recreation. They are perceived as being crowded, dirty and uncomfortable, making them unsafe and unpleasant places for people to spend time. Traditional shopping environments can be made more attractive to all shoppers by improving negative conditions and characteristics associated with the traditional markets. This goal can be achieved by:

- Enhancing maintenance to keep the environments clean.

- Increasing the sense of security through additional lighting where necessary, reduced crowding of stalls in some areas, and providing visible security measures such as video cameras and security guards.

- Providing more structure and order to the display booths and the circulation system. This can be achieved by providing a greater hierarchy of spaces and circulation pathways such as from small to larger isles within the market. This will help reduce the sense of crowding and make the market more legible. People will have a better cognitive map of the market layout. This also increases the sense of mystery via the ability to wander through the displays and discover things.

- Preserving the existing preferred characteristics of traditional markets, such as high quality and colorful fresh and specialty products, low and negotiable prices, convenient location and access, and full interaction with products and sellers.

- Increasing the sense of belonging for the tenants by encouraging them to care for and decorate their stores as well as the common areas.

The results show that traditional markets are attractive largely to housewives and married shoppers; however, they are not attractive to group shoppers, single shoppers, and younger shoppers who require more possibilities for recreation and socialization. To attract a broader range of shoppers, traditional market environments need to include opportunities for rest and comfort, and increase opportunities for socialization. This can be done by:
- Providing opportunities for resting, including benches and sitting areas. The areas should be shaded for more comfort.

- Providing opportunities for social interaction by including sitting areas, open restaurants and cafés, and gathering spaces and public spaces for cultural entertainment and events.

- Providing trees and other vegetation at key locations to increase the aesthetic quality, as well as provide shade and cooler temperatures, particularly in outdoor markets.

- Providing services such as day care where older people can be responsible for taking care of children (while their parents are shopping) and possibly telling stories about Thai culture and traditions. This service may attract parents who might have difficulty leaving their children when shopping. Moreover, it can be an opportunity to transfer culture and traditions to the newer generation, as well as to establish a connectedness between the new generation and traditional Thai marketplaces.

All of the above improvements should make the existing traditional marketplaces more preferred and should expand the range potential customers. Once they shop in the traditional marketplace and become preferred, a sense of place and relationship with the environment can be established. To provide a more concrete strategy, a diagram of physical improvement is displayed in Figure 6.1—Improvement Diagram for Existing Traditional Marketplaces.

An example of how these physical changes could be accomplished is explained in Figure 6.1—Improvement Diagram for Existing Traditional Markets. The diagram shows three different levels of improvement. The diagram depicts:

a) The general layout of existing traditional markets. The general conditions include small stalls and equally narrow walkways in between. This structure of layout, although simple and easy to understand, can make it difficult to make a cognitive map, especially in a large-scale marketplace. It is also almost impossible to provide preferred characteristics due to limited spaces.

b) A first-step improvement by adding vegetation. With minimum change and smallest footprint, vegetation can be added at the intersection of the isles to create more pleasant atmosphere. Vegetation can help reduce the temperature and provide aesthetic quality. The possibility of this improvement depends on the availability of space.
c) A second-step improvement can be applied to the larger market areas, in which the width of the isles can be expanded without sacrificing too many retail units. The improvement can be done by widening secondary aisles and adding sitting areas. The secondary aisles are normally not the main opening of the stores. Wider secondary aisles would reduce crowded conditions; sitting areas would provide more opportunities to recreate and socialize. This improvement can increase preference.

d) A third-step improvement can be done in large-scale marketplaces by adding gathering areas with landscape, including vegetation, sitting areas, and lawn. A lawn with trees and sitting areas can serve as an open space in crowded marketplaces, making them more comfortable, relaxing, restful, and enjoyable. This addition of open areas is suitable for large markets, where wayfinding can be difficult. The space also serves as a node and district that help people create a better cognitive map and better locate a store in relation to the open area. Adding an object of art or even a large tree can serve as a landmark for the place.
These steps of improvement are suitable for different environments, which depend on the flexibilities of space, location, and budget. Markets with larger areas and more flexible space possess higher possibility for implementation according to the provided diagram. The improvements suggested not only increase aesthetic quality and opportunities for rest and social interaction, but also increase imageability of the place in terms of nodes, landmarks, and districts (Lynch, 1960). Strong imageability has been found by Lynch (1960) to increase the attractiveness and vitality of urban places.

**Contribution to the Environmental Design and Planning Field**

The findings of this research could inform those who are involved in the process of developing, designing, and managing shopping environments. The information derived from this study can help them to preserve the important characteristics of shopping environments in new developments and to enhance the viability of the existing traditional environments. By generalization across the type of environments, the results may suggest to environmental design professions that traditional environments of the ordinary and vernacular type are culturally important, and that importance can be studied for design purposes using preference study. Furthermore, the findings can help the design of future environments to be more culturally sensitive, and help existing traditional or vernacular environments to be enhanced to better meet future needs. Along with developers and managers, design professionals can take part in the process of preserving traditions and cultures.

The following paragraphs discuss how the overall contribution can be implemented for the practice of developing, planning, and design of environments. The discussions are focused on the shifting of the development and design paradigm and the implementations of the provided strategies by different roles of involving parties. This includes the roles of developers, managers, and designers of both modern and traditional environments. The roles of managers are addressed for both private and public places. Each of these is discussed further below.

**Shifting the Paradigm**

Previously, at least for several decades, an enclosed shopping mall has always been a primary paradigm in shopping development. The new shopping development always begins with an enclosed shopping mall prototype, which has caused many problems (as discussed in the context chapter). New shopping developments should consider other alternatives than enclosed modern malls. One alternative includes development of small-scale local outdoor shopping environments that are a gathering of large number of small local retailers.
This solution requires less budget investment; therefore it is feasible, especially in residential communities. It also generates less environmental problems. The small development requires no use of large-scale air-conditioners, less grading and hard pavement, and less automobile use; thus, it is more sustainable. At the same time, this solution can help strengthen economies and social ties of local communities, as traditional markets have done before. The tenants can be small local retailers selling their own products. Thus, the transaction can be exchange among local communities. Finally, the characteristics and relationships between people in the small development are similar to the characteristics and relationships in traditional market environments.

**Developers and Managers**

For privately-owned shopping environments, it is likely that the preservation of traditional characteristics and inclusion of preferred characteristics can make the environment more pleasing to the shoppers. The preferred environments will influence the decision of the shoppers to shop in the environments. This can significantly increase the traffic, which eventually increases sales and income for developers. Developers should work closely with tenants to implements the strategies, since they both have the same goal to increase traffics and sales volumes. Managers should encourage tenants to decorate their stores and nearby public areas.

For public-owned traditional shopping environments, the objective of development and management of the markets should include providing pleasant environments that are related to shoppers’ preference. For more effective implementation, managers should encourage tenants to provide maintenance, care, and decoration in both their own units and the common areas. Special occasions and festivities can be created by cooperation between the management and tenants. Working with tenants can increase level of care and attachment for the place of the tenants. In general, tenants tend to know and relate better with their customers than managers.

**Designers**

Designers should not depend on prototype in the design process. They should look at the traditional environments as possible solution rather than the modern prototype, when designing shopping environments. Traditional characteristics can provide a suitable solution since they exist and have been adjusted to the needs and behaviors of customers for a long time. Design opportunity should not exist only in the new modern development. A traditional style environment project can be a good opportunity for designers to use their creativities for maintaining the positive aspects of the traditional environment, as well as incorporating new
technology and improvement. Incorporating shoppers’ preferences would provide designers more opportunities to design and involve in the development and design process of various environment, and at the same time would likely result in a better and preferred solution. In addition, direct input, and working in close relationship with different involved parties such as developers, managers, tenants, and shoppers can provide better solution that satisfy all parties.

In general, designers should not restrict themselves to the process of modern design as provided by modern educational system. Moreover, education of the designers and planners of the environment should gear toward serving people by inclusion of native traditions and cultures, especially the vernacular ones. This can enable designers and planners to contribute in the process of preserving the cultural legacy of their own nation.

2. Research Implications

This section discusses the implications of this dissertation in a research context. The implications are described by the dissertation's contribution to the environmental perception and assessment research field, the limitations of the dissertation, and the opportunities for future research.

**Contribution to Environmental Perception and Assessment Research Field**

The results of this research contribute directly to the body of knowledge by adding to cumulative results of previous preference studies and the overall field of environmental perception and assessment research. In addition the results also support the theoretical explanations of this research field. The results can also be generalized in some instances to similar types of settings and populations. The contribution to environmental perception and assessment research can be summarized as: 1) repetition of the method in a different setting and with a different population; 2) confirmation of the theoretical explanations and major findings by the findings that are consistent with those from previous studies, and are explainable by the established theoretical explanations; 3) generalizing the application of preference study approach across the field of studies and preservation of traditional environments.

**Limitation of this Dissertation**

This dissertation has attempted to adopt a form of holistic and exploratory research. As a pioneer study of this type in this setting, it provides broad understanding of the salient patterns of significant results and factors that influence preference. However, limitations exist. The limitations of this dissertation can be discussed by the terms depth limit and breadth limit. The
depth of this dissertation is limited to the ability to answer more "what" questions than "why" and the "how" questions. The findings provide the overall knowledge about the phenomenon and the setting rather than the strength of effects of certain variables or the in-depth explanations about how the phenomenon occurs.

The breadth of this dissertation is limited to the sample of the setting and the sample of the population. Although the sample of the environments was selected with the intention of covering a variety of environmental types and characteristics, a sample size of scenes is limited by the practicality of the survey procedure. An ideal situation would include at least three scenes of all possible combinations of types, subtypes, and characteristics. Therefore, the generalization of the results is limited to the environments that are similar to those covered by the sample.

The limitation of the sample of the population can be described in three aspects, the representativeness of the sample to the population, the cultural aspect, and the exposure of the respondents to western cultures. First, the sample of the respondents in this research was not selected by a true random sampling. The sample was selected with the intention to represent the characteristics of Bangkok residents by the control of the percentages of gender, age, and household income. However, other characteristic of the respondents differed from the characteristics of Bangkok population. The respondents seemed to have higher education than the actual Bangkok population. This might be a result of from the tendency of educated people to be more willing to participate in a survey than those with lower educational levels. Therefore, the implications of this research should only be applied to other population with caution.

Second, this research was conducted with respondents in the same culture. Therefore, cross-cultural implications were not provided. Previous cross-cultural studies have shown similarity in preference for environments (Herzog et al., 2000; Kaplan & Herbert, 1987); however, those studies focused primarily on natural settings. In addition, another study found differences in preferences for landscape styles between cultures (Yang & Brown, 1992). Consequently, application of the findings to different cultures warrants further research. Finally, the exposure of the respondents to western cultures may have an effect on preference for modern and traditional environments. This research neither controlled nor measured this variable. Therefore, caution is needed when dealing with the population that may have different level of exposure to other cultures. These limitations provide considerations for future research.
Opportunities for Future Research

The opportunities for future research extend from the limitations of this dissertation as well as respond to possibilities in implementation. For future research, it is necessary to apply careful consideration regarding sample of populations. As already discussed, the representativeness of the sample, cross-cultural issues, and the respondents’ degree of exposure to western culture require careful attention. This also leads to the need to repeat this research in a cross-cultural design with more than one population. In addition, controls or measurements of cultural exposure could provide valuable information.

Since this dissertation is holistic and exploratory, extensions of its findings call for more specific focuses. Several opportunities exist among various types of research. The first approach is to narrow the focus to a specific sample of the environments. Future research can focus on specific types of environments, such as a competing pair of traditional and modern environments: for example, between fresh markets and supermarkets. For a smaller setting context, the sampling of scenes can sufficiently cover a variety of subtypes and characteristics, and the survey questions can be more intensive. The answers and implications can be more specific.

The second possible approach to further study of this subject is the clarification approach. Future research can intensively address the questions of "how" and "why" a certain phenomenon occurs or "how" and "why" people prefer and perceive certain characteristics. Even a question such as "what are the actual relationships people have with their particular environments?" still needs intensive answers. These questions call for intensive research, such as a case study using qualitative data from in-depth interviews or participant observation, which could better explain in detail answers to such questions. Other narrowed-down possibilities include experimental research that can prove the effects of certain characteristics, while others are held constant. It is necessary to find out, for example, how traditional markets can be improved by expanding the width of their aisles to better accommodate shoppers without crowdedness, and how much of the width can be extended without losing the characteristic of being a traditional market. Once holistic knowledge has been provided, experimental research can extend the understanding with empirical data and strengthen findings in a precise manner. In addition, research generally needs repetition. Any repetition on approach, method, or settings is possible and useful in contributing to the research field as well as the practices of design professionals.

The third possible research approach is research into how these ideas can be implemented. This can be done parallel to implementation of the strategies. Especially for the purpose of preserving
traditional environments, it is necessary to identify effective ways of implementing or conveying the ideas so that vendors in the traditional marketplace as well as designers, planners, and managers can together do things differently. This approach includes the evaluation of the implemented strategy or pre and post evaluations of the implementation of the strategies. Another possibility is research into conveying the application of the strategies. It is necessary to provide empirical proof for developers, tenants, and managers so that by implementing the strategies, they can increase profit.

Conclusion

This dissertation has addressed the problem of the existence of traditional shopping environments in the context of the new globalizing economy. The objectives were to identify important factors influencing shoppers’ preferences for the shopping environments and to provide implications for future developments and improvement of traditional marketplaces. By using a preference study involving a preference survey of users and interviews with providers of the environments, this dissertation has postulated empirically-based findings. These findings have deepened understandings about the primary factors that influence preference for shopping environments. These include environmental factors, shopping factors, and shoppers’ background factors. Each of these factors has been discussed in detail. The findings are consistent with the cumulative results from previous research and support theoretical explanations in the field of environmental perception and assessment research. Finally, this dissertation raised implications for practice and research. Strategies for development, design, and management of shopping environments have been provided for the involved parties to help preserve the important aspects of traditional marketplaces. For researchers, this dissertation has contributed to the body of knowledge in the field of environmental perception and assessment. A discussion of the limitations of this dissertation has highlighted opportunities for future research approaches.