RELATIONSHIPS BETWEEN ASSESSMENTS OF RESIDENTIAL MOVIE INTERIORS, ATTRIBUTES OF ASSUMED RESIDENTS AND RESPONDENT CHARACTERISTICS

A THESIS
SUBMITTED TO THE DEPARTMENT OF
INTERIOR ARCHITECTURE AND ENVIRONMENTAL DESIGN AND THE INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES
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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF FINE ARTS

By
Yaprak Tanrıverdi
July, 2009

I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Fine Arts.

Assist. Prof. Dr. Çağrı İmamoğlu (Principal Advisor)

I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Fine Arts.

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ABSTRACT

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The aim of this study was to explore the relationships between assessments of residential movie interiors, personal attributes of assumed residents and respondent characteristics. The study was conducted with 113 students from the Department of Interior Architecture and Environmental Design of Bilkent University. Nine residential movie clips were presented to the participants and they were asked to fill out a questionnaire sheet which consisted of three parts: Items involving space qualities, personal attributes of assumed residents, and relatedness and happiness of the respondents. Residential spaces rated as unfamiliar were rated as more exciting and were preferred over those rated as familiar. Furthermore, respondents having related self-construals reported more happiness and they perceived assumed residents as being happier and more trustworthy. No significant relationship was found between the complexity ratings of the movie clips and the evaluations of the residential spaces portrayed. This might have been because other variables besides complexity could not be controlled due to the nature of the stimuli.

KEY WORDS: complexity, residential interior spaces, relatedness, movies, residents, evaluations

ÖZET

FİLMLERDEKİ KONUT İÇ MEKANLARI VE VARSAYILAN KULLANICILARA İLİŞKİN DEĞERLENDİRMELER İLE KATILIMCI ÖZELLİKLERİ ARASINDAKİ İLİŞKİLER

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Bu çalışmanın amacı, filmlerdeki konut iç mekânlarının ve varsayılan kullanıcıların değerlendirilmelerinin katılımcı özellikleri ile ilişkilerini anlayıp araştırmaktır. Çalışma Bilkent Üniversitesi İç Mimarlık ve Çevre Tasarımı Bölümü'nden 113 öğrenciye uygulanmıştır. Değişik filmlerden alınan dokuz konut iç mekânı öğrencilere gösterildikten sonra, mekân özellikleri, varsayılan kullanıcıların değerlendirilmesi ve katılımcıların ilişkililik düzeyini ölçen üç bölümlü bir anket doldurmaları istendi. Sonuçlara göre, tanıdık olmayan mekânlar heyecan verici bulundu ve daha çok tercih edildi. Bunun yanı sıra kendisini ilişkili ve mutlu hisseden katılımcılar olası kullanıcıları daha mutlu ve güvenilir olarak nitelendirdi. Karmaşıklığın iç mekânların değerlendirilmesi üzerine belirgin bir etkisi bulunamadı, bunun olası bir sebebi filmlerdeki iç mekânların kontrol edemediğimiz birçok özellik barındırması olabilir.

Anahtar Kelimeler: karmaşıklık, konut iç mekânları, ilişkililik, filmler, kullanıcılar, değerlendirmeler

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Dedicated to my father and mother.

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1. INTRODUCTION

Throughout history there was no clear separation between art, science, philosophy and their different forms. After the industrial revolution, as knowledge developed, specialization ascended as well. However specialization not only separated the fields and disciplines from each other, it also gave ways to the relations between them. Today most of the schools and researches focus on the interactions between different fields and work in interdisciplinary methods to rethink the way we live and understand the world.

Architecture as a discipline interacts with many fields such as design, art, history, science, computer etc. One of the recent interests is the interaction between architecture and the cinema. Many studies have been done (Agrest, 1993; Bordwell and Thomson, 1986; Dear, 1994; Grigor, 1994; O'Herlhy, 1994; Penz, 1994) to explore the borders and the extents of this relationship so far. Since this relationship has started being studied, researchers tried to point out the thing in common between architecture and cinema. Space is as the basis of this relationship, regarded much in the literature and in many studies (Atalar, 2005; Chanan, 1998; Elsaesser and Barker, 1990; Erkarslan, 2005; Grigor, 1994; Gurata, 1997; Ince, 2007; Kaçmaz, 1996; Kutucu, 2005). Main aim of these studies has been to investigate the transformation of architectural space as well as into cinematic space, their similarities and differences.

In addition, understanding and experiencing a space is the primary goal for both architecture and cinema. In architecture perception of spaces is explored widely so far, because people perceive environments differently and this affects liking, pleasure and satisfaction with the environment. Here and throughout the thesis, perception is used in the wider, everyday sense, which also includes cognition and affect. Physical and psychological factors affect the perception of environments. Physical factors such as complexity level, architectural style, lighting, color etc has been studied as well as some psychological factors such as familiarity (Akalin, Yildirim, Wilson and Kilicoglu, 2009; Baird, Cassidy, and Kurr, 1978; Herzog, Shier, 2000; Imamoglu, 2000; Kaplan, Kaplan and Wendt, 1972; Kunishima and Yanase, 1985; Sadalla and Oxley, 1984; Valdez and Mehrabian, 1994; Yildirim, Akalin-Baskaya, and Celebi, 2007).

1.1 Aim of the Study

The main purpose of this study was to explore the relationships between assessments of residential movie interiors, personal traits of assumed residents and the effects of respondent characteristics on evaluation and perception of the interior spaces. Perception of a real space rather than manipulated images attracts extensive attention however; there are few studies in the literature so far. Hence, in this study residential movie interiors were used and respondents were asked to evaluate the interior spaces. Also referring to the previous studies (Nasar, 1989) they were asked to guess attribution of personal traits from the interior space characteristics.

Besides, investigating the effect of respondent characteristic on space perception such as familiarity or the experiences with the space; relatedness or separatedness from the society, is another aim of the study.

1.2. Structure of the Thesis

The thesis focuses on the effects of physical and psychological factors on perception and preferences. The first chapter is an introduction to the topic which briefly explains the interaction between architecture and cinema, space as the common point of this interaction and factors affecting the perception of a space. Aim of the study and also structure of thesis is mentioned in the first chapter here.

The second chapter includes studies on space perception and preferences of urban spaces, buildings and interior spaces. Physical and psychological factors affecting perception, personal traits of owners and buildings, house styles have been discussed and studies on these subjects are stated. Architectural style, complexity, light and color are mentioned as a part of physical factors. Familiarity and personal factors such as education and culture are also briefly explained. The interior spaces used in the study are residential. Previous studies focused on the impact of light and color on psychological mood, presence of window and its effects on workers, and perception of interiors in terms of responses to decorative, stylish and familiar interiors (Brennan, Chugh and Kline, 2002; Kaye and Murray, 1982; Kuller, Ballal, Laike, Mikellides and Tonello, 2006; Kunishima and Yanase, 1985; Kwallek, Soon, and Lewis; 2006; Ritterfeld and Cupchik, 1996; Valdez and Mehrabian, 1994; Yildirim, Akalin-Baskaya, and Celebi, 2007). Still there is a lack of research on perception and preferences of interior spaces; therefore perception of spaces is investigated

including perception of neighborhoods, evaluation of the building facades, house styles, building materials; liking, preferences and satisfaction in general.

The third chapter explains the relationship between architecture and cinema. The similarities and differences of the two disciplines and space as the basis of this interaction are mentioned. Differences between architectural and cinematic space, usage of space at the background and at the foreground and the role of spaces in movies at outdoors and indoors are explored. Analyses of movie spaces from previous studies are also mentioned.

The fourth chapter describes the study; objectives are explained with the research questions and hypotheses. The method of the study includes: the sample selection, descriptions of the materials and the explanation of the procedure. In the fifth chapter the statistical analyses of the rated data are presented and the discussion and evaluation of the data is given in chapter six. Finally, chapter seven includes the conclusion of this study. Limitations of this study are discussed and suggestions for future studies are mentioned.

2. PERCEPTION AND PREFERENCES OF SPACES

> "We know a great deal about the perception of a one-eyed man with his head in a clamp watching the glowing lights in a dark room, but surprisingly little about his perceptual abilities in a real life situation" (Ross cited in Gifford, 2002, p. 20)

Perception is the initial gathering of information. Environmental perception is the ways and means by which people collect information through all their senses. In the everyday sense perception of a space is not only the gathering of information through all senses, but also involves storing and recalling information about the location and arrangement of spaces, that involves cognition and affect. Perception of a space in the thesis is taken as a broader thinking about environments beyond their spatial aspects (Gifford, 2002). Space perception may be categorized under three sections; perception and preferences of urban spaces, buildings and interior spaces.

Perceptions of environments may differ according to personal, cultural and physical influences. Those influences may affect people's evaluations and preferences of the selected space (Gifford, 2002). Personal influences depend on many factors. Variability in perceptual abilities of individuals is one factor. Impaired sight or hearing procures a constrained image of the environment (Coren, Porac , and Ward, 1984). Additionally, personal characteristics such as training or education; experience with setting or liking the setting are also effective on perception of environment.

Education and training may also affect the way people perceive their environment. Many studies have recorded distinctions between the environmental appraisals of design professionals and non-professionals, as well as between different groups of design professionals. In a study involving architects' judgments about public preferences, Nasar (1989) found that, they misjudged public values. According to architects, public would prefer and like Colonial style most however public rated it as high in status and unfriendly. Architects preferred Contemporary style in a similar way unfriendly and high in status. This misjudgment may be caused from the misjudgment of the relative importance of status versus warmth in public. Simply, people do not want what architect wants. In another study on preferences of experts and public in a competition, Nasar and Kang (1989) found that public evaluations of competition entries were consistent and different from the expert jury's choice. The jury's first choice was among the least liked by public.

Brown and Gifford (2001) found that architects were unable as a group to predict public evaluations for buildings would be positive or negative such: when architects try to predict lay preferences; they employ conceptual properties as architects do, instead of thinking of conceptual properties as laypersons do. These elemental physical cues that predict the assessments of architects signify more complex ideas such as prototypicality of style and richness of materials to architects therefore are important in preference (Gifford, Hine, Muller-Clemm, Reynolds, and Shaw, 2000).

Purcell, Peron and Sanchez (1998) state that, education may affect preference judgments. Design professionals and others may differ in terms of their preferences. For architects differences appear to be present at the beginning of the education

process and increases over the period of education and during professional practice. Purcell (1995) mentions that architecture students prefer the high- to the popular-style houses, whereas general university population prefers the popular to the high style. Stamps (1991) notes that, overall correlations between the preferences of review board and other respondent groups were statistically significant. It is also observed that non-board respondents had highly significant preference for projects which passed the review board over the projects which did not pass the review board.

Experiences with setting may also affect environmental perception. Even small differences in familiarity may affect perception. Imamoglu (2000) mentions that respondents' familiarity differences with house façade drawings may influence both their perceptions of complexity and liking. Specifically, more familiar stimuli may appear to be relatively more predictable and hence less complex and more pleasant. In other words, when the respondents are relatively more familiar with the scene, most complex ones might not have been perceived as complex. The amount of the familiarity is important in preferences. In extreme familiarity, people find the stimuli boring however moderate familiarization did not affect the perception of complexity and preferences (Tinio and Leder, 2009).

Purcell, Peron and Sanchez (1998) state the reasons for interaction between age and judgment scale are similar for both Australian and American house styles. For the Australian popular style, the young participants who were significantly less familiar, judge this style higher in preference when compared to the older group. For the interest and typicality judgments, there are no differences between the groups. The

young group judged Australian suburban style to be less familiar, higher in preference but lower in interest.

Pennartz and Elsinga (1990) found significant differences in perception between adolescents and adults. Within the adolescents' perceptual schemes, immediate sensation of stimuli, such as color, light, and complexity, is relatively important, whereas interpretation of observable features such as signs is relatively unimportant. Those physical aspects are important to adolescents; however their importance decreases with age.

The cultural content in which individuals are raised may lead to considerably different ways of seeing the world. According to Coren, Porac and Ward, (1984) urban settings with their high frequency of rectangular objects and straight lines, introduce different perceptual experiences than simple rural places where curved rounded lines characterize the houses and landscape.

Nasar and Kang (1999) explored the role of culture in design preferences by showing photographs of house exteriors representing 15 different styles to 150 adults (30 representing each of the five taste cultures). The results brought out strong similarities in the responses across the groups. However similarities decreased when the educational and occupational distance between groups increased. They found strong similarities with highest preferences for the Tudor style, and highest friendliness score for the Farm style as stressed in some other studies as well. However, even for style, preference is not a matter of taste only hence; widely different groups show commonalities.

Perception also depends on the scene being perceived. This topic may be controversy according to the literature. Gifford (2002, p. 26), states,

> "Some emphasize the considerable processing of visual information that occurs by sensory receptors and the brain, involving both physiology and learning. This point of view is expressed in the old saying, 'Beauty is in the eye of the beholder."

On the contrary Wohlwill (1973), claims environment is not in the head, it is slightly independent from person. To solve this controversy Gifford (2002) offers the proposition that the more scenes differ, the stronger the influence of the environment; the more scenes are similar, the greater the influence of personal factors.

To sum up, literature indicates that, environmental perceptions such as distance, length and size mainly depend on which physical elements are in the scene and how they are arranged. However, personal factors such as age, familiarity and evaluation of environment; culture such as the environment one was raised in; and training such as profession affect the way we see the world as well (Gifford, 2002).

2.1. Perception and Preferences in Urban Spaces and Landscapes

> "In the context of an evolutionary perspective, it is hardly surprising that human preference would have some relationship to those environments in which survival would be more likely" (Kaplan, 1979, p. 242).

The physical aspects of the city and personal factors are presumed to influence the way people think about their cities and neighborhoods. This can be about satisfaction with the environment, attachment to the environment or being mentally healthy or not. The physical effects of the city and personal factors are presumed to affect

people's actual behavior, their perception and emotions in urban public places such as streets, parks, and stores (Gifford, 2002).

Kaplan (1979) claims that perception is not solely dealing with information about the environment, but at the same time yielding information about what the possibilities are when human purposes are concerned. It seems that the psychology of perception should have something useful to contribute to landscape aesthetics. A significant number of students of landscape aesthetics views preference with alarm, or at the very least, distaste. In addition, preference judgments are not random or highly idiosyncratic because many of the rules that preference follows turn out to have correlates in the classic aesthetic and landscape architecture literature (Kaplan, 1979).

People's reaction to nature is not something to be exchanged for something else, but an inherent reaction. People value even rather common instances of nature (Kaplan, Kaplan and Wendt 1972). At the same time certain rare, non-natural elements are not valued at all. There is a sense in which uniqueness is valued. In terms of access a place may be unique too. The only park one can get to for lunch within walking distance of downtown is unique too.

Another aspect of people's reaction to landscapes suggests that a three-dimensional interpretation is their preference for scenes which means walking into the scene leads one to see more. For instance a highly legible scene is easy to oversee and to form a cognitive map of. When there is considerable apparent depth and a well-defined

space, legibility is greater. Smooth textures and distinctive elements well distributed throughout the space that can serve as landmarks (Kaplan, 1979).

According to Kaplan (1979), complexity is the connection component in the analysis of preference of landscape. Perhaps more appropriately referred to as diversity or richness, this component was at one time thought to be the sole or at least the primary determinant of aesthetic reactions in general. In a loose manner, complexity reflects how much is going on in a particular scene, or how much there is to look at. If there is a scene consisting of an undifferentiated open field with horizon in the background then preference is likely to be low. Hence, complexity is also one of the important features that affect residents' choices and behaviors (Amato, 1981; Stamps, 1991).

Familiarity and experience with the environment also affects the perception of urban spaces. According to Guest and Lee' (1984), residents who live in downtown have more positive views of downtown; and suburban residents have more positive views of suburban. Because, people attach themselves to their neighborhood and create some specific interaction with it. They develop special bonds with a specific setting which has a meaning for them (Altman and Low, 1992).

The interaction with nature like creation of a garden or access to natural area is regarded as the key aspect in this field (Sime and Kimura, 1988). Visual quality, aesthetics and green spaces attract and satisfy people. According to Taylor (1982), lack of green areas and physical deterioration is strongly related with dissatisfaction. Other studies confirm that aesthetical quality of the environment determines

satisfaction (Widgery, 1982). In Nasar's study (1983), it is claimed that aesthetic appraisals are not based solely on geometric or physical features of buildings. Among many personal and contextual factors that influence appraisals of the environment in general and of architectural beauty in particular are the observer's emotional responses to environment.

As Regnier (1985) mentioned, almost everyone would prefer an environment described beautiful, green, relatively small and natural with good access to needed facilities and services. This kind of environment manages to satisfy residents. Residents develop certain bonds with environment and attach themselves to the space (Altman and Low, 1992).

2.2. Perception and Preferences in Buildings

> "Architects have long thought that the style of a building conveys social meanings and affects emotional experience. Empirical evidence supports these speculations. Residents use their house exterior to define identity and convey personality traits such as friendliness, privacy and independence, social status, aesthetic sense, life style, ideas and values to others" (Nasar and Kang, 1999, p. 33).

Perception is an aspect of human behavior, and as such, it is subject to many of the same influences that shape other aspects of behavior. In particular, each individual's experiences determine his reaction to a given stimulus situation or environment. There are differences in behavior across cultures, including differences in perceptual tendencies (Gifford, 2002). Hence, it is stated before for urban environments and neighborhood, perception of buildings, facades, and other physical characteristics are perceived differently by people too. The connections between physical characteristics of buildings, the emotional impact of the building on the observer, and

the observer's global appraisal of the building are explored in many studies so far. As Nasar (1983) stated particular physical features of buildings produce predictable affective responses in observers. These affective responses are in turn reliably associated with observers' global evaluations of buildings.

Nasar (1989) explored the judgments of people about house styles in his study. Results indicated that Tudor and Farm styles were the most desirable ones. Farm style was rated as friendly and middle in status, however Tudor was rated as moderately friendly and high in status. Colonial style was ranked in the middle in desirability and least friendly. Surprisingly according to perceived resident status it is rated highest, Tudor was second, Contemporary third, Farm fourth, Mediterranean fifth and Saltbox was last. Nasar (1989, p. 254-55) explains this by:

> "…judgment of desirability may depend on perceptions of friendliness and status. Hence Tudor which ranked high on status and neutral on friendliness, and Farm which ranked high in friendliness and neutral in status, received high scores for desirability. Colonial which ranked first in status but last in friendliness, ranked in the middle desirability. This means slight variations on the Tudor and Farm style might yield highly favorable meanings to public."

Purcell (1995) studied house styles and different types of judgments which are typicality, familiarity, preference, and interest. Here, typicality and familiarity refer to the degree of fit to or difference from an existing mental representation of house based on long term experience. The other judgments, preference and interest address the issue of affective experience associated with this particular type of environment. In Purcell's study geographic locations didn't affect the judgment of goodness though; there was significant difference in familiarity, Australian houses rated as more familiar. According to typicality and familiarity judgments (evidence for tacit

learning which is base of mental representation), high style houses are judged as unfamiliar and atypical whereas popular culture houses are rated as familiar and typical. Australian high and popular style houses are rated as more familiar than American ones. However there are no differences between high and popular style houses of both countries in typicality. This means experience of familiarity depends on the representation of both abstract and specific attributes in the mental representations that develop on the basis of tacit learning, whereas the experience of typicality is related only to the more abstract attributes (Purcell, 1995).

A similar study was conducted by Canter and Thorne (1972) on two different groups of young people from Glasgow and Sydney. A number of slides of houses, some common and some uncommon to both groups, were represented. Results indicated that, students preferred and rated house according to their familiarity with the house styles. Students from Glasgow preferred sub-urban dwellings, old terraces which are clean and neat though somehow looking cheap. On the other hand these illustrations caused a derisive laughter when projected on the screen to the Sydney subjects. Canter and Thorne state that, this may be caused from coziness of the dwellings to Glasgow subjects. In addition to that, some dwellings that looked like they were designed or built in Scotland, whereas could be seen around Sydney had a high rating from Australians and quite desirable. In the end results may be summarized by saying “the grass is greener on the other side of the fence” (Canter and Thorne, 1972, p. 30) which means less familiar houses preferred over the familiar ones.
Sadalla and Sheets (1993) mention building materials used on the exteriors of houses have extensive symbolic significance. Materials can be seen as metaphors in a social communication that defines the creative expression, interpersonal style, and

socioeconomic situation of house owner. When house owner actively chooses the material of houses material symbolism can be mentioned. Even materials are commonly perceived to have traits that are related to basic perceptual attributes. Weathered wood and wood shingle, are seen as warmer; more emotional, weaker, tender, more feminine, and more delicate than are concrete block, flagstone or brick. Emotionality, tenderness and femininity are related to warmth with the regard to meaning and may extract from the solid perceptual qualities of wood and stone (Akalin, Yildirim, Wilson and Kilicoglu, 2009). Similar work has been carried out by Cherulnik and Wilderman (1986), about contemporary observes would accurately differentiate among 19th century houses built by and for members of different socioeconomic groups; which is mentioned under the caption of perception and preferences in neighborhood. The results of these studies stated above support the conclusion that housing forms including architectural features and materials may serve as symbols of residents' status.

Physical characteristics of a house significantly affect preferences and evaluation. According to Gifford (2002), four kinds of physical features such as housing form, architectural style, interior and outdoor areas are the main characteristics. Aesthetic appraisals depend in part on the degree to which a building appears compatible with its immediate context. Architectural form such as style and design of the residence affects preferences. Nasar (1989) states that people tend to choose housing that reflects their personal background.

Preferences for style also change in part with changes in fashion. According to Baird, Cassidy and Kurr (1978) there is evidence that most individuals prefer higher

ceilings, flat or sloping ceilings and walls that meet at 90 degrees or more. However, empirical data on this subject so far unable to clarify which individuals prefer which room arrangements.

The judgment of preference and the role of complexity have been regarded much in literature so far. Berlyne (1974, cited in Imamoglu, 2000) states that complexity is an important variable of formal aesthetics and complexity of a pattern increases when the number of independently selected elements it contains ascends. He also pointed out that the aesthetic appeal of a pattern depends on the arousing and de-arousing effect of its collative or structural properties, and an increase in arousal or a decrease in an uncomfortably high level of arousal would bring pleasure and reward.

Complexity is a strong predictor of aesthetic judgment. The effects of complexity on aesthetic judgment are robust, even when assessing its effects using different stimuli, participants, and contexts. The stability of the effects of visual features on aesthetic judgment seems fitting, given the human need to efficiently deal with the constantly changing aspects of the environment (Tinio and Leder, 2009).

Imamoglu (2000) explored the role of complexity in preference for and familiarity with two-storey traditional and modern house facades in his study. Imamoglu found that, the relationship between complexity and preference was an inverted U-shape, such that drawings with intermediate level of complexity were favored over the most and the least complex ones. Respondents were equally familiar with houses of minimum and intermediate complexity levels, but their familiarity decreased for houses of maximum complexity level, as did their preference.

Nasar (1984), explains that the characteristics of visual environment chosen as likely to relate to preferences for urban scenes included novelty, complexity, order, naturalness, openness, upkeep and prominence of vehicles. The variables complexity and novelty are two stimulus properties (collative properties) cited as generating uncertainty/arousal in previous studies (Berlyne, 1971). It is also explained in Berlyne's study that an inverted U-shaped function describes the relationship between uncertainty/arousal and hedonic response. That means increases in uncertainty/arousal bring out increases in pleasure up to a point, however after that point pleasure decreases. Nasar (1984), indicates in his study that stability of certain environmental attributes are related to hedonic response.

As stated above, this inverted U-shaped relationship indicates that liking occurs at intermediate degrees of complexity, changing to disliking at the high and low extremes of complexity (Imamoglu, 2000). Chan (1997) also refers to complexity and claims that buildings with inadequate formal complexity caused by a lack of detail often look boring; less is often a bore. However, an inclusion of extreme details or details that are incoherent with the style, concept or theme of a building may not necessary be an advantage to the building; more can also be a bore.

Wickelgren (1979), claims that; respondents' differences in familiarity with environment may influence both their perceptions of complexity and liking. More familiar stimuli may appear to be relatively more predictable and hence less complex and more pleasant. However, a familiar scene may be predictable and boring too. Tinio and Leder (2009) found that respondents who are familiar with simple patterns found complex patterns more beautiful than simple ones; and participants

familiarized to complex patterns found simple patterns more beautiful than complex ones.

Herzog and Shier (2000) also mention the role of complexity in age and building preference in their study. They claim that, increasing complexity has a positive linear relationship with preference for all buildings, but the effect is most pronounced for older buildings. Hence; older buildings were slightly preferred over modern buildings only for buildings very high in complexity. As a matter of fact, simpler modern buildings preferred over simpler older ones.

2.3. Perception and Preferences in Interior Spaces

> "We know that residents arrange and decorate their interiors according to certain patterns that reflect such dimensions as simple-complex, conventional-unusual, and rich-plain décor, and messy-tidy upkeep. These patterns are related to social class and marital or living arrangement differences" (Gifford, 2002, p. 252).

The preference and perception of an interior space depends on many factors. Preferences are generally related to personal and cultural factors though, perception of an interior space is affected from physical features of the setting (Gifford, 2002). There is a lack of research on perception, preferences in interior spaces; some studies explored the role of physical factors in residences, entertainment areas and working places in literature so far.

Residence is one of the most important interior spaces in individual's life. Kleinecke (2006) mentions that interior design is used for the creation of private spaces in which people introduce themselves to themselves and to others. The residence is a personal site where identity is constructed and staged. Interior spaces and the

residence are formed by individual and collective identities to the same extent as they aid the formation of those very identities. A person attaches cultural demographics and psychological meanings to a physical setting (Gifford, 2002).

According to Altman and Gauvain (1981) a residence may be characterized according to five parameters which are permanent versus temporary, differentiated versus homogenous, communal versus noncommunal, identity versus communality and openness versus closeness. The spatial features rather than furnishings or the size of the residences may give significant clues about the social status of the owner. Some physical environments vary from homogenous to differentiated. In high society differentiated houses are common because each space has particular function, furniture and spatial organization. It is hard to observe highly differentiated houses in low society (Altman and Gauvain, 1981). Hence, the amount of differentiation is a significant characteristic for the house and economical status of the house owner.

Cultural influences are strong in the resident preferences. Therefore; they vary in identity versus communality. Residences generally depict the personal touches of the occupants. Those are unique interests and personal needs. Communality is the reflection of a cultural identity in residences. Identity of a residence is quite important to expose the characteristic of the individuals, their needs, and preferences. (Giffort, 2002).

In addition to the physical factors of a residence, there are strong factors related to preference and perception of the user. As mentioned before; Thiel, Harrison and Alden (1986), explored the effects of physical features on enclosedness in a domestically scaled space in the form of a rectangular shape. The perception of the

sense of relative spatial enclosure tested on a scale from 0 (least enclosed) to 100 (most enclosed). According to the results the degree of enclosure on this scale was; 30 for a surface in the horizontal ceiling or over position, 20 for each of the three vertical surfaces which are walls and 10 for a surface in the horizontal floor or under position. This can be summarized by saying that the presence of ceiling is three times as important in setting up the perception of enclosedness as floors and that, walls are twice as important.

Physical characteristics of interior spaces have also been mentioned in some other studies. For example the presence of windows (Kaye and Murray, 1982), higher ceilings than those usually encountered in the environment, the angle of adjoining walls 90˚ or slightly larger (Baird, Cassidy,and Kurr, 1978), and square as opposed to rectangular rooms have all been associated with higher preference ratings. Room preference can be quantified and related to measures of architectural features, as well as to classes of user activities.

Room arrangement and spatial design are other issues affecting preferences and perception of spaces. Brennan, Chugh and Kline (2002), state that different office layouts affect employees' perceptions and satisfaction. It is mentioned that employees appear to be negatively affected by the relocation to open offices, stating decreases in their satisfaction with the physical environment, increases in physical stress, decreased team member relations, and lower perceived job performance.

Ritterfeld and Cupchik (1996) examined the responses to dining and living rooms for three room categories: decorative, stylish and familiar. They asked subjects to write

brief narrative which might take place in each room, and perform a recognition task for details of the rooms. Results indicated that The desire to live in a room was best predicted by perceived beauty and personal involvement. Familiar rooms were preferred most, while Decorative rooms were seen as most informative about the person.

Yildirim, and Akalin-Baskaya (2007) claims that users tend to have positive perception of moderate density of seating elements than a high density of seating elements. Hence, complexity evokes interest, but people seem to prefer only moderate complexity. Interest and preference increase with complexity up to a point, after which preference decreases. However it is very difficult to decide at which point preference decreases. Crowding with a dense use of furniture might cause an undesired level of complexity that result in less interest. Overall, the suggestion for more consistent preferences can only be achieved through moderate complexity of interiors design.

Kuller et. al (2006) explored the role of lighting and color on psychological mood. They found obtained an inverted U-shape function for the relation between mood and lighting. The mood improved and reached its highest level when the lighting was experienced as just right, but when it became too bright or too dark the mood declined. Also, they stated that the use of good color design might contribute to a more positive mood.

Color is an important variable in interiors that affect individual's preferences. Furthermore, studies show that not the color itself, but its denseness and brightness

affect preference. Hue was not significantly related with preferences but related with perceived warmth. Saturation is an important variable; more saturated hues were evaluated as more elegant, comfortable and better. Brightness is related with how fresh and light a room is (Kunishima, Yanase, 1985). Yildirim, Akalin-Baskaya, and Celebi, (2007) mentioned in their studies that lighter colors are judged as being friendlier, brighter, more cultured, seems to make life easier and more pleasant, and also appear more beautiful. According to literature Valdez and Mehrabian (1994), claim that customers have a more positive perception of violet interiors than yellow interiors. In other words, short wavelength colors; associated with 'cool' colors, like violet or blue were preferred, leading to a linear association between affective tone and wavelength. Generally it is stated that violet/blue interiors will produce higher levels of positive affective tone and increased purchase intentions than red/orange interiors. Kwallek, Soon and Lewis (2006) examined the effects of three office color interiors (white, predominately red, and predominately blue-green) on worker productivity and found that the influences of interior colors on worker productivity were dependent upon individuals' stimulus screening ability and time of exposure to interior colors.

3. CINEMA AND ARCHITECTURE

> "Whether real or imaginary there is an inextricable link between the creation of films and the development of our built environment, at least in the exploration of volumetric space in time" (Toy, 1994, p.7).

Architects have long been concerned with the world of cinema; especially, in the 1920s and 30s when they were trying to contribute to the progress of the modern movement through the pictures (Penz, 1994). In many schools of architecture the most recent interest is cinema around the world. Movies are studied for finding a more subtle and responsive architecture. Also some of the most respected architects like Bernard Tschumi, Rem Koolhaas, Coop Himmelb(l)au and Jean Nouvel have admitted the significance of cinema in the structure of their approach to architecture (Pallasmaa, 2000).

3.1. The Relationship between Cinema and Architecture

> "At its best, architecture is a celebration of space. Cinema, on the other hand, as Jimmy Stewart so well put it, gives people tiny pieces of time. The idea of filming architecture seems therefore almost an axiom of cinema" (Grigor, 1994, p. 17).

Architecture has intensely sought connections with other fields of art such as painting, literature, sculpture and music since the late 1970s. It is also interacts with design, city planning, art, history, philosophy, archeology, science, technology, computer, politics, law etc. The interaction between different fields in both practice and theory is considered to be important (Kacmaz, 1996). Music has been regarded

as the art form which is closest to architecture in its natural abstractness; however, cinema is even closer, not only because of its spatial and temporal structure, but essentially because both architecture and cinema articulate lived space. These two art forms create and adjust extensive images of life. Buildings and cities create and keep images of culture and life, and cinema pictures the cultural archeology of both the time of its making and the era that it depicts. Both architecture and cinema clarify the dimensions and the essence of existential space; they both create experiential scenes of life situations (Pallasmaa, 2000).

Bruno (1997), also claims that, art that is closest to architecture is cinema. Movie appears out a shifting insightful arena and the architectural configurations of modern life which creates a direct link between cinema and architecture more than other art disciplines. Besides, cinema is an efficient tool that creates and offers the viewing audience space and time and refers to spaces that should have the clue from that specific time and era. Space and time help to provide the basic framework of the world and subjective reality (Khatchadourian, 1987).

According to Penz (1994), both architects and filmmakers deal with the world of illusions. As long as a building is not off the ground, it mainly abides in the mind of its creators. It is generally represented by plans, sections, perspectives or models; to describe a space not built yet. So as architecture, cinema is a form of art and representation. However; a movie as a representation neither shares the reality of what it represents nor is an illusion. As a mode of representation, cinema does not represent things completely though it adds new qualities to them (Kacmaz, 1996).

Dyer (1993), explains this as: reality, itself is always more comprehensive and complicated than any kind of representation can possibly contain. It may be incited that paintings, sculptures, photographs and settings, and film shots are illusions of real things; in some manner they are incomplete. They are less than the things they represent or they do not have all the characteristics of the things they represent. In addition, it is this feature of incompleteness that enables it to perform its various tasks within the frameworks of the art world (Carroll, 1988).

Dealing with representation and illusion lets architecture and cinema learn from each other. The architects may learn from the filmmaker's ability to represent and move through spaces and experience the three dimensional space pointed out in movies. Similarly, filmmakers may use architectural representation modes as a starting point for the film industry or buildings as space in movies (Penz, 1994).

3.2. Architectural and Cinematic Space

> "The cinema's representational space is not given but constructed" (Elsaesser, 1990, p.389).

The space as the main purpose of architecture, creates a link between architecture and other arts; painting displays the space, poem describes, sculpture locates the object in this space and cinema uses and performs space in multiple ways (Atalar, 2005). The substantial experience of architectural space by a user within the space has many similarities to the viewers' perception of a sequence within a film. Despite the fact that the user may take any chosen direction and appreciate the fulfillment of other senses; the viewer follows an impelled route but can see the same as the user and can gain from the experience (Toy, 1994).

> "Most of the art forms such as painting, theater, ballet, literature, poetry, photography, cinema, including architecture, try to describe or create a space. While space is a tool in cinema and the other forms, architecture uses art to make space. Space, whose creation is an artful act, is the product of architecture. One significant difference is that space is the foreground in architecture since it is the purpose and reason of existence of it. However, in cinema, the purpose is not necessarily to define or create a space, but space is one of the inevitable elements like scenario, music, light or actors" (Kacmaz, 1996, p.13).

Architecture aims to create space, space is the real goal. However, in cinema space is a tool and directors use it to represent their ideas and convey them to the audience. Still, it is a fundamental element for movies such as narrative, light, sound or actors because a movie cannot exist without architectural elements (Ince, 2007). The transformation of architectural space into cinematic space is simple; a film cannot be smelled, touched or tasted however, can be heard as the way it is seen. Hence, movie is a medium that operates on two of the five senses at once, in other words space turns into image and sound in cinema (Jarvie, 1987). Therefore; cinematic space can be called the visualization of the real world, reflections of mental images or memories in a cinematic frame. Still audience perceive this artificial space as real and attach some specific feelings related to it, as analyzing the main characters, feeling fear, joyful, confused or stressed. In this sense, cinematic space is an efficient tool to test the audience's emotions, liking or disliking towards a specific space given. Atalar (2005) states that space also may give specific clues about the characters and their moods in the movies or what is coming next in the narration. Because cinematic space is more than a physical space it also makes a symbolic use of it. It maps the elements and relation of the physical, the social and mental worlds; it is the mental images, memories, dreams and the architecture in the viewers' minds (Chanan, 1998).

In cinema real environments or the décor of imaginary or existing spaces are used. In the first one, architectural space is directly recorded. In the second, the representation of space is prepared using modeling and then the model is recorded. In other words, in the former situation space is directly represented while in the latter there is a double presentation (Kacmaz, 1996). Both situations are valid to understand architectural space; representing architectural space is an interpretation of space in a movie. Because both the real and décor of spaces differ from the original environments; they embodies symbolic meanings, emotions and are tools between the director and the audience.

This transformation of architectural spaces into cinematic ones stated above is obtained by the usage of continuity, movement, dimension, depth, perspective, and timing in the movies. Architectural space is continuous, a camera recording a space is continuous too, however cinematic space is discontinuous because when different time, space and shots are edited consecutively continuity is broken (Bordwell, 1985). Therefore montage is the power of the cinema. It affords both the development of cinema and its difference from other art forms by juxtaposing different times and spaces (Kacmaz, 1996). In a movie, scenes that are shot in totally different spaces, times and conditions can be edited through montage. In other words montage attaches two different pieces of film and combines into a new concept and quality (O'Herlihy, 1994). By juxtaposing different time and spaces, a smooth flow is obtained and the audience experience and perceive the symbolic meanings, ideas or emotions without a distraction caused by discontinuity.

Movement is a feature cinematic space adds to the architectural space. There are many kinds of movements in cinema, camera moves, actors move, objects, light, time, space all move. Camera movements may create different conceptions of space, or playing with the speed of motion allows director to obtain a new reality (Bordwell and Thomson, 1986). Through these mobile shots static architecture represented in movies gains movement which creates a dynamism (Deleuze, 1986).

In cinema there is a visible and visual flattening of spatial experience. Cinematic space is composed of limited, flat and two dimensional reflections of architectural space. Everything within the space is condensed on one flat plane which is the screen (Sobchack, 1987). However, as Carroll (1988) mentions it, flat surfaces stand for three dimensional objects in cinema. In other words three-dimensional and static architecture turns into two dimensional and dynamic spaces in cinema. Cinematic space lacks the 'third' dimension, namely depth (Dear, 1994). Therefore, perspective and its relations with other tools are very important in constructing the cinematic space. With the help of different lens lengths rather than linear perspectives, various perspective systems can be obtained. All these create dynamics of the space and obtain imaginary spaces which even a human cannot see with his/her own eyes (Gurata, 1997). Spectators may locate themselves in the movie and start feeling as the main characters do. Attachment and involvement of the audience to the movie is obtained by this way. However, it is not essential to use focus when perspective is emphasized. When camera focuses on something, rest of the space loses its clarity and blurred. A very clear and distant space can be obtained with deep focus and long shots. In "Citizen Cane" (1941), deep focus was used very effectively (Atalar, 2005).

Time is also powerful on space-making in cinema and cinematic space has control on time. It can be understood by the motion and changes in space, therefore it has space and motion in its structure. Cinema is the intersection of time and space. By editing different spaces and scenes, film obtains its own time. Editing allows director to create a different and independent time and space rather than real. It is possible to jump between different time periods – flash backs and flash forwards- to create another approach to the time of the film which addresses to the mental world of the audience (Atalar, 2005).

There are three times: the time the movie is made, the time represented in the movie, and the time it is watched (Kacmaz, 1996). The movie "Gattaca" was filmed in 1997 and refers to shiny, scientific and antiseptic utopian world which belongs to future times. Therefore spaces represent a different and unusual architecture and life style to the audience. Similar representations may be seen in the movie "Down with Love" which was filmed in 2003 and depicts the spaces in 1960s New York. Interior decoration, furnishings and layouts of these movies belong to another specific time and the audience may distinguish the life style, economic power, and attributes of the occupants by evaluating these spaces. So not only its time of production, a film can be affected from the time it belongs to (Chanan, 1998).

With the help of these features stated above, audiences experience the space they perceive with eyes and ears. Bordwell (1985) states that; in architecture space is designed, whereas in cinema both space and spatial experience are designed. The movie controls the order, frequency and the duration of the presentation of events without limits. However, in architecture there are lots of alternatives to experience a

space though, in movies there is only one form of experiencing the space, the one represented in the movie. Therefore, directors try to suggest the spectators an alternative way of seeing for a limited time. They afford and dominate the experience of the individual with the space (Rattenbury, 1994).

3.3. Space Usage in Movies

"Space acts" (Sobchack, 1987, p. 262).

Space usage is another important point in which a director can choose according to his point of view. Approaches to the space in cinema could be twofold as: 'space at the background' and 'space at the foreground' (Kacmaz, 1996).

Space at the background considers some directors who are neither concerned with the representation of space nor benefit from it as a tool. In such movies, directors select spaces without a concern with the contribution of space to the film, but according to lighting conditions and camera location. Space fills the empty parts behind the actors in the cinematic frame (Kacmaz, 1996). When space used at the background, it is not used as a tool of expression and far away from giving spatial messages to the spectator. Elements forming the background cannot change the film or the narrative. Therefore, directors prefer to use background blurred to take the attention to the main theme and actors. In "The Matrix" movies, Wachowski uses this technique in car scenes (Ince, 2007). In the movies where space is used in the background space is solely a complementary element to prepare the spectators for the next scene. It is hard to guess neither about the moods, attributes of the character nor about the narrative.

Space at the foreground uses space as form and symbol. Space is both independent of and important as narrative. Referring to architecture, space here is an aim rather than tool. Space as an actor is metaphorically and literally at the foreground (Sobchack, 1987). Directors refer to use space as a strong and dominant tool to attract the viewer, to attach certain feelings and to give some clues about the movie. These kinds of movies are useful to explore the role of evaluations of both space and the occupants of the spaces. Space acts itself and communicates with audience just as actors. When space is used at the foreground the features represents the filmic space such as continuity, movement, dimension, depth and perspective which stated above exist in the movie (Kutucu, 2005). Considering these features aid to transform architectural space into cinematic ones; this study focuses on the movies where space is used at the foreground to obtain the necessary evaluations and personal traits from observers through the space. Agrest (1993) explains this by stating space being a mere background against where action takes place, without stressing the architectural characteristics of that background. Space is nearly the exhilarating power behind the movie. Hence, it may be possible to evaluate the space, guess the attributes of occupants/residents and audiences attach and reflect themselves while rating those spaces and owners.

A study in environmental psychology found that students who were shown photos of some 19th century Boston houses and asked which were belonging to upper class, mid class and low class, correctly identified the class of the owners even 100 years after the houses were constructed (Cherulnik and Wilderman, 1986). Hence, in the outside, cities, buildings and their facades; and in the indoor places architectural elements, openings, light, color, texture and furniture are all parts of space at the

foreground and either symbolizes something or give clues about style, time and occupant. For instance, the buildings in the movie "Gattaca" (1997), are shiny, polished, clean and almost antiseptic. There are some shots in which characters stand in front of concrete buildings, immense and frightening in their artificial atmosphere. Buildings are selected to emphasize the status of characters; whether they are genetically altered or not (Kutucu, 2005). In another movie "Anayurt Oteli" (1986), spaces used to represent the personality of the main character who is schizophrenic and murky. General atmosphere is depressive which is obtained by color and light. Colors are dull and amount of light is low (Atalar, 2005) which all emphasizes the mental world of the main character. This topic may be discussed in detail as the role of outdoor/indoor spaces in the movies.

3.4. The Role of Spaces in Movies

> "Space, one might say, is nature's way of preventing everything from happening in the same place" (Dear, 1994, p. 9).

In cinema both real environments and the décors are used. Outdoor spaces are cities, neighborhoods and streets, including buildings, their facades and the style which represent a specific time, era and social status of the characters etc.; indoor spaces are residences, working places and entertainment areas which represent the main idea and approach of the characters, their moods and mental worlds etc.

3.4.1. Outdoor spaces in movies

There is a strong relationship between cinema and the city which is the most important form of social organization. Representation of cities in movies is widespread in the film history. There are many important movies which represents

the cities with the time, culture, style, conflict and even wars. Cinema was fascinated by the representation of cities, lifestyles and human conditions from Lumiere Brothers' Paris of 1895 to John Woo's Hong Kong of 1995 (Williams, 1997). City as the birthplace and motivation of technology; it's the most artificial of landscapes even in the future. Future cities represented in the movies have to introduce both a complete urban environment which has vision of future and spaces that would be compatible with the narration (Ozakin, 1997). "The City of the Future works to preserve the imaginary integrity of the subject in precisely the same way as classical narrative cinema does: by 'binding the spectator as subject in the realization of the film's space' (Clarke and Markus, 2007, p. 601). These cities are postmodern representations of real world's urban social reforms and utopian architectures. City as place organizes narrative and spectatorial space. Image of the city functions as cinematic declaration as it engages a phenomenology of vision (Kuhn, 1999).

According to Clarke (1997) city has certainly been understated in film theory because it has lost its actual significance by placing the city in the foreground which has been widely regarded as making an innovative argument. However, contrasts between cultures and spaces are a tool for movies. Rural environments and central places, country and city, landscape and cityscape are the examples of spaces that create contrast. For instance, "Before the Rain" (1994) belongs to a recognizable genre of film in which landscape, or setting, has more than background significance. It functions as foreground. The totality of the landscape became the subject. The figures are primarily reference points as in a landscape painting by Poussin or Claude (Christie, 2000).

3.4.2. Indoor spaces in movies

Interior design is used for the creation of private spaces in which people introduce themselves to themselves and to others. The house is a personal site where identity is constructed and staged (Kleinecke, 2006). In the movies, interior spaces also contain identities of director, era and the characters. Therefore, the interior design, architectural style, arrangements, color give clues about both the function of the space and the characteristics of the users, and the narration (Atalar, 2005).

The architectural elements in the interior space may have symbolic meanings referring to period, people or life styles. For instance, in the movie "Gattaca" (1997) usage of the spiral staircase is a key element. It dominates the space and symbolizes the DNA structure in viewers' minds in the shiny, perfect world of Gattaca (Kutucu 2005); or in "Truman Show" (1998) when the main character is hopeless and disappointed, he realizes the stairs and up the stairs a door is seen. Stairs refer to a new life and hope in this scene.

There is no evidence on perception of movie spaces yet though, there are many studies focused to explore which physical features of the space affect perception of that space in real as mentioned before. Thiel, Harrison and Alden (1986), found that the presence of ceiling is three times as important in setting up the perception of enclosedness as floors and that, walls are twice as important. Rectangular rooms appear larger than square rooms of equal size (Sadalla and Oxley, 1984). Presence of a window has been regarded in some other studies too, to explain the preferences and satisfaction of users. Yildirim, Akalin-Baskaya and Celebi (2007) found that presence of window gives more positive perception of the space to the people. Still

there is no evidence for the relation physical features of an interior space and perception in a cinematic frame.

An inventive artificial or natural lighting is equally decisive to the aesthetics of a film as it is to any successful architectural space (Penz, 1994). -A space may be independent from all architectural elements though still lighting can define the space in cinema. As in Jarman's "Wittgenstein" (1993), there are no architectonic elements but light as space which is defined by darkness (Kacmaz, 1996).

Color is also crucial to differentiate spaces and represent the moods. Greenaway for instance, generally uses each room colored in a single hue that sets the tone for all that happens there, in his movies. Each space is defined in a different color and different light to be differentiated from other scenes (Pally, 1991). Similarly, in "2001: A Space Odyssey" (1968), Kubrick uses color and light to differentiate spaces. Some spectators indicated that white refers to purity, order, and hygiene; black refers to eternity and mystery. Besides this, color can be used partially to emphasize something important as in "Schindler's List" (1993) with a red coat of a girl (Atalar, 2005).

3.5. The Relationship between Cinema and Interior Architecture

As mentioned above, there is a strong relationship between architecture and the cinema. Hence, this relationship including representation of urban and architectural visions and transformation of architecture into cinematic space has been studied in previous research (e.g. Dear, 1994; Kacmaz, 1996; Kutucu 2005; Ozakin, 1997). However, there are fewer studies on the relationship between cinema and interior

space (e.g. Atalar, 2005; Gurata, 1997; Erkarslan, 2005; Pally, 1991) and this relationship is only mentioned with a single chapter. This may be caused by the difficulties in controlling the many factors which attract or give messages to the viewers in the interior spaces. Directors know that, a scene would differ according to where it takes place. A kiss in the bathroom or in a bedroom gives totally different messages or moods to the spectator. There is the power to change the audience's ideas and emotions towards the scene given.

First of all, an interior space may be smaller in size compared to urban and architectural scenes, though the messages it carries may be more complex and intensive compared to the former spaces. If there is a garden, street or building itself in the movie, viewers would focus on the house styles, people walking on the streets and perhaps urban design. These factors may address the time the movie was depicted; where it takes place; social status and time from clothing; and house styles may refer to social status and the time again. It is harder to hide messages and clues in a scene which composed of predominant, strong elements. Compared to urban and architectural scenes, interior spaces could be seen as the playfield where directors may create miracles. Space may be smaller, though it is full of architectural elements, personal belongings, furniture, lighting fixtures etc. This area is the best to hide clues. For instance when there is something that belongs to the main character in the scene, viewer may guess he was in the house some time ago. There are many factors affecting evaluation and liking in the interior spaces. Amount of lighting, complexity levels, arrangement of furniture, color and the interior decoration may affect the liking and evaluation. These features are important for the director as well as architects. Amount of lighting may change the mood; complexity level may affect

the emotions of the viewers; colors and style may affect liking. The problem in here is the difficulty in controlling all these variables forming the interior space. It is hard to keep one smooth change in one factor and keep the rest stable. But still, interior spaces in the movies are closest to the real environments rather than pictures or modeling and should be studied in detail. In our study, we would like to explore the role of complexity in interior movie spaces. We are aware of the difficulties of controlling variables in an interior space and obtaining a smooth complexity differentiation though, but still exploring one of these factors forming interior space would be a good contribution to the literature where interior spaces is generally neglected.

Another factor we would like to mention in this study is the relationship between residents and residences in the movies. It is mentioned before that respondents generally guess owners' characteristics correctly from the house styles (Nasar, 1989). In addition to that physical features of a space aid viewers to catch the story line and the personality of the characters in the movies. Seeing a house for hero in a film can give the information as where actor lives in, whether he is rich or not and about his social status (Kutucu, 2005). In the movie "The Anatomy of a Woman" (1991) director characterizes three different houses for three husbands. The owner of the first house is industrial engineer and the house is minimalistic with white couches, dining table and chairs made of metal and glass, metal indirect lighting fixtures and laminated floor which represents the masculine identity and a cold modernism. Second house is in classic style with huge classic curtains, woods and bamboos dominating the house to represent an intellectual, sophisticated and elite man. Third house belongs to a romantic constructional engineer which is prefabricate, small and

functional house (Erkarslan, 2005). In our study, we would like to explore the relationship between space qualities and attributes of assumed residents of movie clips.

According to the reasons stated above interior spaces are strong tools both for architects and directors. They are good examples to test the audience's liking and evaluation of spaces; and emotional responses of audiences to the spaces given. Architects may design interiors regarding the style, liking or evaluation of movie spaces such as amount of lighting, amount of complexity, selection of furniture and style etc. Directors may use interiors to hide or give the messages/clues they want to share, change the mood and reflect the personality of characters. For instance the relationship between the complexity level of a space and happiness or trustworthiness of the character may be associated and would be helpful to the directors.

4. THE STUDY

This study aims to explore the relationships between assessments of residential movie interiors, attributes of assumed residents and respondent characteristics. Nine residential movie interiors were presented to the respondents and they were asked to fill out a questionnaire about space qualities of the interiors, assumed residents and relatedness of the respondents themselves.

4.1. Research Questions and Hypotheses

The research questions of this study are stated below:

1. What is the effect of perceived complexity level of spaces represented in the movie clips on judgments of liking and evaluation of residential movie spaces?
2. Do respondents relate the characteristics of interior spaces in the movie clips to attributes of assumed residents?
3. Is the relatedness/separatedness of respondents' self-construals related to their perception of residential movie spaces?

Hypotheses of this study are:

1. Levels of complexity of residential movie spaces are related to preferences for these spaces.

2. Respondents' ratings of spaces are associated with their attributes of assumed residents.

3. Respondents with related self-construals would rate spaces and assumed residents more positively then those who have separated self-construals.

4.2. Method of the Study

This section includes the information about respondents, materials used in the study which are the movie clips and questionnaire and finally the procedure of the study.

4.2.1. Respondents

Respondents were 113 students from Bilkent University, Ankara, who agreed to participate in this study (excluding 5 questionnaires which were eliminated because of being incomplete). Of these 113 respondents, 59 (45 women, 14 men) were at the second year of the Department of Interior Architecture and Environmental Design and 54 (44 women, 10 men) were at the third year of the same department. The respondents were all from the same department, to avoid any possible differentiation caused by education (Nasar, 1989; Stamps, 1991; Purcell, 1995; Purcell, et al., 1998; Brown and Gifford, 2001). The mean age of the respondents was 21.51. No hypotheses were generated involving gender, regarding the studies in the literature which state that responses of men and women in preference studies are similar. According to these studies men and women are alike on most but not all psychological variables. Besides overinflated claims of gender differences cause harm in numerous realms, including women's opportunities in the workplace, couple conflict and communication, and analyses of self-esteem problems among

adolescents (e.g. Barnett and River, 2004; Bleeker, 2002; Hyde, 2005; Hyde and Plant, 1995)

4.2.2. Materials

Materials used in the study were: nine movie clips of residential spaces and a questionnaire on the evaluation of the spaces, attributes of the assumed residents of the spaces and the relatedness/separatedness of the respondents.

4.2.2.1. Movie Clips Representing Residential Spaces

Based on residential spaces taken from different movies, 17 movie clips of 20 to 30 seconds length were initially selected from US blockbuster movies were filmed in between 1995- 2008; which were close to Turkish house interiors in general and had different levels of complexity. Movie clips were all in between 20 to 30 seconds, to obtain a smooth representation of space without characters walking around. Besides, we wanted to keep length less than 30 seconds considering respondents will watch and rate nine movie clips successively without distraction. With the help of nine experts (4 master students, 2 Ph.D students and 3 instructors) from Bilkent University Interior Architecture and Environmental Design department, the number of the movies was decreased to nine movie clips of varying levels of complexity (three best representing low, three best representing intermediate and three best representing high complexity levels). These nine residential spaces included both modern and traditional styles, and some of them had different layouts (see Appendix A1 and A2, for explanations and figures of movies). During the analysis stage, according to the mean complexity ratings, the nine clips were reduced to three (Movie Eastern Promises, Movie 6- Gattaca, Movie 8- Minority Report), to obtain

the maximum differentiation between movie clips representing low, intermediate and high complexity levels, as perceived by the respondents, as explained in the results chapter. Briefly the characteristics of nine movie clips are presented below:

Movie 1- *27 Dresses (A. Fletcher, 2008)*

This clip was 23 seconds long. Its style was between traditional and modern hard to categorize it under one of these styles. Atmosphere was warm and familiar though seems poorly designed.

Movie 2- *Disturbia (D. J. Caruso, 2007)*

This clip was 17 seconds long. The style was traditional and it looks randomly designed without order. The space was tidy however because of the amount of books, photo frames and furniture it looked messy. The style was traditional rather than a modern space.

Movie 3- *Down with Love (P. Reed, 2003)*

The third clip was 17 seconds long. The atmosphere of the space was happy, dynamic and full of romance and had a modern rather than a traditional look. The space was white in general but had some color on furniture and accessories. As a result, a happy, joyful and very impressive space was obtained.

Movie 4- *Eastern Promises (D. Cronenberg, 2007)*

This movie clip was 23 seconds long. Space was traditional rather than modern and had a dark and depressing atmosphere but somehow cozy and looked like a house. Lighting was poor with respect to the cold and depressive atmosphere of the movie.

It looked like a depressing and unhappy day at home. The predominant color was brown inside which made the space familiar but old-fashioned.

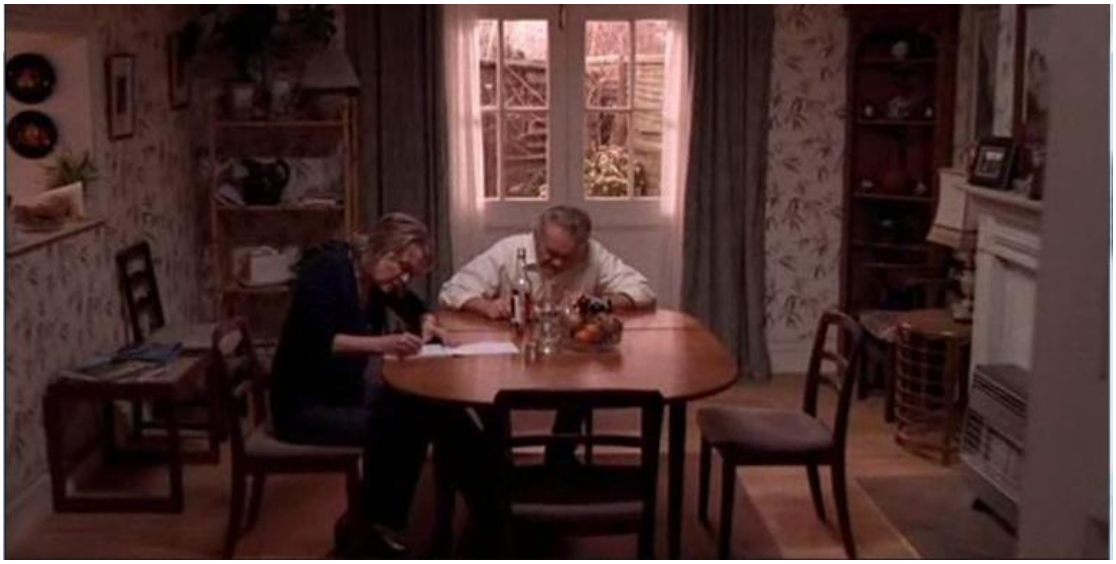

Figure 4.1. The interior space from the movie *Eastern Promises (D. Cronenberg, 2007)*

Movie 5- *Garden State (Z. Braff, 2004)*

This clip was 29 seconds long. The style was traditional and the space was messy, cramped and colorful. The walls were in a vivid pink color which made the space seem even more crowded. The atmosphere was really warm though it could be called a poorly designed, unimpressive space.

Movie 6- *Gattaca (A. Niccol, 1997)*

The clip was 19 seconds long. Architectural elements were selected accurately to create a cold minimalist atmosphere. All materials emphasize the antiseptic, scientific world of Gattaca and interior looks like a factory rather than a place called "home". Quality and amount of light was satisfactory and space was poor in terms of texture and color.

Figure 4.2. The interior space from the movie *Gattaca (A. Niccol, 1997)*

Movie 7- *Love Actually (R. Curtis, 2003)*

This clip was 23 seconds long. Spaces were warm, intimate and familiar to the respondent's daily world. The space was familiar and generally modern rather than traditional. Architectural elements were simple and designed according to modern architecture however furniture or accessories made space unique and homelike.

Movie 8- *Minority Report (S. Spielberg, 2002)*

This clip was 32 seconds long. The atmosphere was really cold, even though there were a lot of objects furniture and decorative elements in the space. The style was high-tech and material selections respected this style therefore it was modern rather than traditional. Blue colored light used in this space. It was unusual in terms of the color and amount. Space was pale and unfriendly. All accessories and furniture created a cramped, extra occupied and a cold space.

Figure 4.3. The interior space from the movie *Minority Report (S. Spielberg, 2002)*

Movie 9- *While You Were Sleeping (J. Turteltaub, 1995)*

This movie clip was 22 seconds long. The space was designed according to modern architecture. Luxury was the main feature of the house. There was unity in the whole space. Quality and amount of light was satisfactory. Colors were mainly, white on the ceiling, walls and ground.

4.2.2.2. Questionnaire Form

The questionnaire form consisted of three parts: the first part was related to the evaluation of the residential interiors from movies, the second was being concerned with the attributes of the assumed residents of these interior spaces, the third and the final part was about the characteristics of the respondents, their relatedness/separatedness from the society and their family and a question about their happiness (see Appendix B1). Initially respondents were asked whether they saw the movie before or not. After that, they were asked to fill out the first and the second parts of the questionnaire which consist of 7-point semantic differential scales, involving 17 adjective pairs (11 in the first part and six in the second part). These

adjective pairs were selected from previous research (Flynn, Hendrick, Spencer and Martyniuk, 1979; Heinrichs, 1984; Hekkert and van Wieringen, 1990; Hogg, Goodman, Porter, Mikellides and Preddy, 1979; Imamoglu, 2000; Kasmar, 1992; Nasar, 1983; Mania, 2001; Tucker cited in Osgood, 1978) and relevant ones to our subject were kept and redundant ones were eliminated. For evaluation of the spaces more than one adjective pairs were used to obtain more relevant results however, we only used 'complex-simple' adjective pair to check the complexity because other adjectives were used in the previous studies related to complexity such as 'ornate-plain' were understood differently by the respondents (Imamoglu, 2000).

The first part of the questionnaire was related to the space qualities of the clips, evaluation of the spaces and the complexity were represented by 11 adjective pairs which are 'poor-well designed', 'ugly-beautiful', 'unpleasant-pleasant', 'unimpressive-impressive', 'uncomfortable-comfortable', 'usual-unusual', 'familiar-unfamiliar', 'exciting-calming' and 'disliked-liked', 'cramped-spacious' and 'simple-complex'.

The second part of the questionnaire form was concerned with the attributes of assumed residents of the interior spaces from the movies. Respondents were asked to guess the characteristics of the owners from the interior design of the residential spaces and to ignore the characters in the movie clips while rating the assumed resident. Adjective pairs in this part were; 'unhappy- happy', 'cold- warm' and 'introverted- extroverted', 'dishonest- trustworthy' and 'bad- good' and lastly 'unfriendly- friendly'. All adjective pairs were given both in English and Turkish in the questionnaire. Some of the adjectives were eliminated or replaced with another

after a pilot study conducted to five people; the ones commented as unrelated or caused conflicting answers, were excluded.

The third part of the questionnaire includes 7-point semantic differential scale questions about the characteristics of the respondents. Firstly, they were asked ten questions about their relatedness or separatedness from their families and the society. Secondly, respondents were asked to rate another 7-point semantic differential scale about the satisfaction from their lives which refers to self- happiness. The scale in the questionnaire was taken from previous research (Imamoğlu, and Guler-Edwards, 2007; Imamoğlu and Imamoğlu, 2007; Imamoğlu and Karakitapoğlu-Aygün, 2007, Imamoğlu, 2003).

4.2.3. Procedure

After the pilot study, we conducted the study in three days. The second year (Interior Architecture and Environmental Design) students participated in the study voluntarily during their 252- Construction and Materials class hours in four groups in two days. The third year students voluntarily attended in the third day in 2 groups during their 302 Interior Studio Design class hours.

As previously mentioned, we conducted a pilot study with five people in order to check the comprehensibility of the adjectives, the questionnaire form in general, and the time required for filling out the parts related to each movie clip. There were nine residential movie clips and each was approximately 20 seconds long. We changed some of the adjectives because participants stated that they believed some of the adjective pairs either referred to the same concept or were obscure.

The nine movie clips were shown to the respondents in two opposing orders to eliminate order effects. After a brief explanation, the respondents were asked to watch movie clips one by one and fill out the part related to that movie from the questionnaire. The respondents were not asked anything related to their identity for purposes of privacy. They were asked to indicate their gender and age in a separate sheet after the study was conducted to obtain the mean age and gender distribution.

After the respondents watched each movie clip, it was asked whether they saw the movie before or not then they were given 1 to 2 minutes to fill out Part 1 (Space Qualities) and Part 2 (Attributes of Assumed Residents) from the questionnaire sheet that was related to that movie clip. It was stressed that they should evaluate the assumed residents of the houses in the movie clips by neglecting the characters seen in the clips. When the ratings for the nine movie clips were done subsequently, the respondents were asked to fill out Part 3, which had questions about respondent characteristics: relatedness, separatedness and happiness of the respondents themselves.

Respondents were unaware of the different levels of complexity of the residential movie clips. They were asked to rate each movie clip according to their perceptions and evaluations of space qualities and attributes of assumed residents.

5. RESULTS

Statistical Package for the Social Sciences (SPSS) 13.0 was used to analyze the data obtained from the questionnaires. For analyzing the data, factor analysis, correlations, and separated one way ANOVAs were used. To specify the main factors regarding assessments of interiors and attributes of assumed residents, factor analyses were conducted. Firstly the means over the ratings of the nine movie clips (involving space qualities-Part 1, attributes of assumed residents-Part 2 and relatedness of the respondents-Part 3) were calculated for each of the items for each respondent. The data set involving these means were then factor analyzed. Secondly, the internal reliability of these factors was measured by using Cronbach's coefficient alpha. Thirdly, correlations between factor scores were calculated. Finally separate one-way analyses of variance (ANOVAs) involving the three levels of complexity represented by the movie clips were conducted on data related to the variables considered. The significance was set at the 0.05 level.

5.1. Factor Analyses of the Rating Data

The data consisting of the overall means for part one (11 adjective pairs) and part two (six adjective pairs) were subjected to a varimax rotated factor analysis, in order to decide the dimensions of the ratings on the semantic differential scales (see

Appendix C, Tables C.2, C.3, C.4 and C.5). Two factors in space qualities (Part 1) emerged which accounted for 60.75 (see Table 5.1) and two factors in attributes of assumed residents (Part 2) accounted for 62.64 per cent of the variance according to `eigenvalue greater than one' criterion (see Table 5.2). The first factor was named the Evaluation factor and the items loaded in this factor were 'poor-well designed', 'ugly-beautiful', 'unpleasant-pleasant', 'cramped-spacious', 'unimpressive-impressive', and 'disliked-liked'. It had an eigenvalue of 4.29 and accounted for 39 per cent of the total variance. The second factor was labeled as the Arousal factor and consisted of 'simple-complex', 'familiar-unfamiliar' and 'calming-exciting'. The eigenvalue of this factor was 2.39 and the factor was accounted for 21.74 per cent of the total variance. The 'uncomfortable-comfortable' and 'usual-unusual' items were excluded because they loaded on both Evaluation and Arousal factors and did not load on a factor.

First factor for the attributes of assumed residents (Part 2) was labeled as Happiness because 'unhappy-happy', 'cold-warm' and 'introverted-extroverted' were loaded heavily on this factor. It had an eigenvalue of 1.89 and accounted for 31.51 per cent of the total variance. The second factor the attributes of assumed residents (Part 2) was labeled Trustworthiness and 'dishonest-trustworthy', 'bad –good' items loaded in this factor. The eigenvalue of this factor is 1.87 and was accounted for 31.12 per cent of the total variance. Also the means of the semantic scales of the ten questions from Part 3 were used as another factor labeled as Relatedness.

Table 5.1. Factor Analysis results involving mean ratings of space qualities (Part 1)

Space Qualities Factor 1	**Evaluation**
Variables	Loading
Ugly- Beautiful	0.82
Disliked- Liked	0.82
Unimpressive- Impressive	0.79
Poor-Well Designed	0.79
Unpleasant- Pleasant	0.77
Cramped- Spacious	0.71
Space Qualities Factor 2	**Arousal**
Variables	Loading
Simple- Complex	0.74
Familiar- Unfamiliar	0.72
Calming- Exciting	0.64

Table 5.2. Factor Analysis results involving mean ratings of attributes of assumed residents (Part 2)

Attributes of Assumed Residents Factor 1	**Happiness**
Variables	Loading
Unhappy- Happy	0.75
Introverted- Extroverted	0.75
Cold- Warm	0.71
Attributes of Assumed Residents Factor 2	**Trustworthiness**
Variables	Loading
Bad- Good	0.88
Dishonest- Trustworthy	0.85

After the rating data were factor analyzed (see Appendix C, Table C.1), nine levels of rated complexity represented by nine movie clips were reduced to three levels in order to obtain more differentiation and a better representation of complexity in the residential movie spaces. The reason for this was that the mean complexity ratings

did not allow for a clear representation of the complexity levels when groups of two or three movies per complexity level were used (see Table 5.3 and Appendix C Table C.1).

Table 5.3. Mean ratings of perceived complexity levels for Space Qualities (Part 1)

Mean Ratings	**Movie 4**		**Movie 6**		**Movie 8**	
	Mean	Std. deviation	Mean	Std. deviation	Mean	Std. deviation
Simple-Complex	2.58	1.63	3.81	2.65	5.72	1.50
Familiar-Unfamiliar	3.26	1.72	5.00	1.50	5.37	1.82
Poor-Well designed	3.30	1.46	5.03	1.40	5.10	1.55
Ugly-Beautiful	3.50	1.40	4.50	1.53	4.40	1.80
Calming-Exciting	3.32	1.10	4.10	1.50	5.03	1.52
Unpleasant-Pleasant	3.37	1.53	4.54	1.56	4.52	1.71
Cramped-Spacious	3.04	1.72	4.33	1.70	3.97	1.70
Uncomfortable-Comfortable	3.45	1.50	3.80	1.66	3.58	1.63
Unimpressive-impressive	2.35	1.23	4.87	1.54	5.51	1.62
Usual-Unusual	2.12	1.18	5.18	1.48	5.96	1.37
Disliked-Liked	2.80	1.57	4.30	1.66	4.64	1.87

5.2. The Internal Consistency Reliability of the Rating Data

The internal validity of the factors was tested, because it is important to check whether or not each group of variables (Part 1 space qualities; Part 2 attributes of assumed residents; and Part 3 the characteristic of the respondents) were reliable within themselves. Reliability of the adjective pairs and questions were measured by calculating a statistic known as Cronbach's coefficient alpha which shows whether the different items are completing each other in a group of data or not. When the score of the alpha coefficient increases, the scale gets more reliable. The internal consistency reliability of the factors was tested by using Cronbach's coefficient alpha and evaluation, happiness, trustworthiness and relatedness of the respondents were found to be internally consistent. However, because the alpha value for the Arousal

factor was low (see Table 5.4) we used the three variables (simple-complex, familiar-unfamiliar and calming-exciting) separately in the separate one-way ANOVAs.

Table 5.4. The internal consistency reliability (Cronbach's Alpha Coefficients) of space qualities (Part 1), attributes of assumed residents (Part 2) factors and Relatedness of the respondents

	Movie 4 Low Complexity	Movie 6 Int. Complexity	Movie 8 Max. Complexity	Means of 3 movies
Arousal	0.42	0.39	0.45	0.48
Evaluation	0.83	0.89	0.86	0.89
Happiness	0.77	0.50	0.61	0.81
Trustworthiness	0.63	0.65	0.59	0.68
Relatedness	0.900			

5.3. Intercorrelations between Mean Ratings

According to the factor analysis results stated above, the intercorrelations between mean factor scores and the three variables related to Arousal factor were calculated. As can be seen in the Appendix C, Table C.6 mean ratings (over nine movies) of complexity, familiarity and excitement were strongly correlated with the Arousal factor as stated in the factor analysis. The Arousal factor and complexity were negatively correlated with trustworthiness. Excitement was negatively correlated with evaluation. Also, the Evaluation factor was positively correlated with happiness factor and trustworthiness. Happiness of the assumed residents was correlated with trustworthiness of the residents and relatedness of the respondents' self construals. Trustworthiness factor was correlated with the characteristics of the respondents which were relatedness and self happiness. The Relatedness factor was strongly associated with self happiness as was expected. There was also a trend between self

happiness and happiness of assumed residents; relatedness of respondents and evaluation of residential interiors (see Appendix C and Table C.6).

Data related to the mean ratings of each three manipulated complexity levels (Movie 4 as low complexity, Movie 6 as intermediate complexity and Movie 8 as high complexity levels) which obtained from the mean complexity ratings of the nine movies (see Appendix C, Table C.1) were also analyzed. It is observed that self happiness is correlated with familiarity. However, this time people who are happy rated interiors as unfamiliar (see Appendix C, Table C.7). According to the results of manipulated low level complexity (Movie 4) excitement is negatively associated with happiness and trustworthiness; arousal is negatively correlated with trustworthiness different than data related to all the nine movies (see Appendix C, Table C.8). According to the results of manipulated maximum level complexity (Movie 8), evaluation factor is associated with arousal, complexity different than the correlations of the nine movies (see Appendix C, Table C.10). There was not any significant difference between the respondents who had seen the movies before and who had not seen.

5.4. One-way ANOVA Results

After the nine movies were reduced to three (Movie clips 4-6-8), in order to check the best representation of different complexity levels, one-way ANOVA was conducted and the results indicated that these three rated complexity levels were, in fact, significantly different from each other(see Table 5.5). As can be seen in Table 5.5, residential interiors representing intermediate and maximum complexity levels were rated as more unfamiliar and were evaluated more favorably than that representing low complexity. On the other hand, ratings for excitingness seemed to

increase as a function of complexity, whereas ratings of trustworthiness indicated that assumed residents of spaces perceived as having low complexity were perceived as the most trustworthy; whereas those of spaces with intermediate level of complexity were perceived as the least trustworthy and those of spaces with high level of complexity were in between. Ratings of happiness attributions to assumed residents did not vary as a function of the complexity level of the residential interiors.

Table 5.5. Separate one-way ANOVA Results for the three levels of manipulated complexity represented by Movies 4-6-8

	LOW		INTER		HIGH		F	error ms	η^2
VARIABLES	M	S.D	M	S.D.	M	S.D.			
Sim-Comp	2.58_a	1.63	3.81_b	1.65	5.72_c	1.50	109.08***	2.58	0.49
Fam-Unfam	3.26_a	1.72	4.99_b	1.50	5.37_b	1.82	53.38***	2.69	0.32
Calm-Exc	3.32_a	1.10	4.09_b	1.51	5.03_c	1.52	48.06***	1.72	0.30
Evaluation	3.06_a	1.10	4.60_b	1.26	4.70_b	1.32	72.475***	1.31	0.39
Happiness	3.06_a	1.44	3.06_a	1.06	2.98_a	1.11	0.187	1.23	0.00
Trustwortiness	4.54_a	1.33	3.33_b	1.31	3.82_c	1.32	25.52***	1.65	0.19

Degrees of freedom= 2, 224; ***P < .001
Note: Means that do not have a common subscript are significantly different from each other at least at the .05 level according to Bonferroni. (Sim-Comp= Simple-Complex, Fam-Unfam= Familiar-Unfamiliar, Calm-Exc= Calming-Exciting)

6. DISCUSSION

The relationship between assessments of residential movie interiors, attributes of assumed residents and respondent characteristics were explored in this study. According to the results no significant relationship was found between the complexity ratings of the movie clips and the evaluations of the residential spaces. There is a linear function between complexity and liking when perceived complexity levels (Movies 4-6-8) were considered. This linear function is in congruence with some past studies (Kaplan, Kaplan and Wendt, 1972; Wohlwill 1976 cited in Imamoglu, 2000). Nevertheless, complexity played an uncertain role in evaluation of all the nine movie spaces as stated in the literature (Wohlwill, 1976 as cited in Imamoglu, 2000) and preference judgments appeared to be idiosyncratic. As we expected, this might have been because of other variables besides complexity could not be controlled due to the nature of the stimuli. Hence, more research is needed to explore the role of complexity and preference judgments of the respondents in the interior movie spaces with more spaces.

In our study, both traditional and modern interiors were represented to the respondents. Respondents' mean age and education status (mean age is 21.51 years and all are interior architecture students) may an influence to prefer modern and unusual interiors rather than traditional and usual ones. Because as stated in the

literature for young people the immediate sensation of stimuli, such as color, light, and complexity, is relatively important and there is a tendency to judge less familiar environments higher in preference compared to the adults (Canter and Thorne, 1972; Pennartz and Elsinga, 1990; Purcell, Peron and Sanchez, 1998) . Thus; the more complex interiors were rated as more exciting than those of low complexity. However, spaces representing intermediate and high complexity were evaluated more favorably than those representing low complexity. Also unfamiliar ones were rated exciting and evaluated more favorably. This may also be related to the familiarity with the environment. Respondents who were design students might have found the familiar interiors predictable and boring and judged lower in preference (Tinio and Leder, 2009; Wickelgren, 1979). Educational status of the respondent group may lead them to prefer unfamiliar spaces compared to the familiar ones too (Brown and Gifford, 2001; Gifford et. al. 2000; Nasar, 1989; Nasar and Kang, 1989; Purcell, Peron and Sanchez, 1998; Purcell, 1995; Stamps, 1991). No hypotheses were generated regarding these differences caused by age and education in the literature.

The results indicated that the most unfamiliar residential interior was perceived as having maximum complexity (Movie 8) was also rated as the most exciting, most unusual, and the third most liked interior. The space might have been rated unfamiliar and unusual because of the general style of the interior (it is from 2050s), blue colored lighting and high-tech materials. Also glass usage on walls and ceiling gives a different impression. Similar results were obtained from the ratings of Movie 3 (see Appendix A1.3 and Figure A2.3) which had the highest rating for liking among all the nine interior spaces. The space was rated as the third unfamiliar space

and the most liked one. This might be both the effect of unfamiliarity and excitement relationship and the modern layout of the space.

Another unfamiliar space Movie 6 (see Figures 4.2, 4.3) was rated as intermediate complex despite the low number of stimuli in the environment. This may due to the respondents' unfamiliarity with the space because some studies stated that respondents may perceive an unfamiliar space more complex than it really is (Imamoglu, 2000; Tinio and Leder, 2009). In addition to that, space had the highest ratings for the interior design, excitement, impressiveness and unusualness. This might be related to the newest trends and minimalism as the dominating style of the latest designs around the world, or to the tendencies of design students, seeking something unusual and modern rather than familiar or traditional.

Attributes of assumed residents were associated with respondents' ratings of spaces as mentioned in the literature (Atalar 2005; Kutucu, 2005; Nasar, 1989). Nasar found that friendliness of the styles and the residents affect the preferences in housing and people tend to choose housing that reflects their personal background. Atalar (2005) also mentioned that a space gives clues about its owner in a movie. In the movie "About a Boy" (2002) interior design emphasizes the life of a modern, single and independent person and all the technological and new devices in the house depicts the effort to fill the loneliness in his life. There is a contrast between the main characters and their houses. Will's apartment is modern and contemporary though; Fiona's house has a traditional, warm and depressive atmosphere with old furniture and faded wallpapers. This also aids the spectator to distinguish emotional status of characters (Atalar, 2005). For instance, space in Movie 4 has a traditional style as

spaces in Movies 2 and 5 (see Appendix A1.2, A1.4 and Figures A2.2, A2.4) and these interiors were rated less favorably by the respondents. Another point is assumed residents of Movies 4 and 2 were rated as unhappy and introverted as compared to that of Movie 5's who was rated as happier, warmer, more extroverted, and more friendly; also received the highest rating for goodness. This may be caused of color usage and messy, colorful interior.

Although attributions of happiness to assumed residents did not vary as a function of the complexity level of residential spaces, interestingly, assumed residents of low complexity and hence, more familiar and calmer interiors were perceived as the most trustworthy compared to those of intermediate and maximum level of complexity, the former being associated with the least trustworthiness.

Arousal factor is negatively associated with trustworthiness of the assumed residents. That means interior spaces that have high ratings for complexity, familiarity and excitement; have low ratings for the trustworthiness of the assumed residents. Hence, the assumed resident of the perceived high complexity level (Movie 8) was rated negatively.

Regarding the statements mentioned above, results indicate that evaluation of a space may be correlated with happiness and trustworthiness of the assumed residents. That means if an interior space is rated positively, its residents would probably be rated as happy and trustworthy in general.

Results indicate that respondents with related self-construals rated spaces and assumed residents more positively then those who have separated self-construals. This finding is important and new in the literature. Wohlwill (1973) claimed that environment is independent from the person and not in their head. On the contrary Gifford (2002, p. 26) stated that "Beauty is in the eye of beholder". Although both viewpoints may be valid, our findings support this latter statement because relatedness and the self happiness of the respondent were correlated with evaluations of spaces and their residents. The respondents, who feel related to the society and to their family and satisfied with their lives, rated the spaces more positively and judged assumed residents as trustworthy and happy in general.

7. CONCLUSION, LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The relationships between assessments of residential movie interiors, attributes of assumed residents and the effects of respondent characteristics are explored in this study. In the literature, generally pictures, slides or manipulated images have been used to test the perception and evaluation so far. However, perception of a real space from clips rather than manipulated images is new and different than studies in the literature even we were aware of the difficulties in controlling all the variables forming interior spaces. In this study some residential movie interiors were presented to the respondents from the Department of Interior Architecture and Environmental Design in Bilkent University, which are close to real life environments.

The relationship between complexity and liking was investigated in this study. According to the literature, there is an inverted U-shape between liking and manipulated complexity, with more liking for intermediate levels of complexity compared to minimum and maximum levels (Berlyne cited in Imamoglu, 2000; Imamoglu, 2000; Kaplan, Kaplan and Wendt, 1982). Wohlwill (1976, cited in Imamoglu, 2000) found a linear relationship for the natural settings and an inverted-U function for the artificial ones. We have found no significant relationship between the complexity ratings of the movie clips and the evaluations of the residential spaces. Hence, preference judgments appear to be idiosyncratic in residential movie

interiors because of the factors we could not control as we expected. More research is needed to explore preference judgments of respondents in interior movie spaces with controlling factors other than complexity in spaces. Studies may be done with increasing amount of spaces or to obtain a smooth control, computer models can be used.

According to the results the residential interiors rated higher in complexity was found more exciting than those rated lower in complexity. Spaces representing intermediate and high complexity were evaluated more favorably than those representing low complexity. It is also significant that unusual spaces were rated as exciting and preferred over usual ones; and familiar spaces were rated poorly designed and disliked in general. This may be caused by the respondent group because, they were young (mean age was 21.51) and interior architecture students. Future studies may also explore the effect of age and educational status on familiarity.

Modern versus traditional styles might have been a factor in the study. Young people preferred modern layouts (light in color, new materials and unusual design such as the spaces in movies 3-6-8) instead of traditional ones (dark, depressive colors, old materials, faded wallpapers etc such as the spaces in movies 2-4-5).

It is observed that, attributes of assumed residents can be guessed from the interior design as mentioned in previous studies (Atalar, 2005; Kutucu, 2005; Nasar, 1989). Assumed residents of low complexity, hence more familiar and calmer interiors were perceived as the most trustworthy. This may be associated with the people are being

defensive when there are too much stimulation in the space. They may give their attention to evaluate the space and neglect the character, eventually rate the character dishonest as well. Also familiarity would be a factor. A familiar space would be safer than unfamiliar one in evaluation.

Characteristics of respondents such as relatedness to the society or to the family also were related to the evaluations of spaces and judgments of assumed residents as a new contribution to the literature. Previous studies (Imamoglu, 2003; Imamoglu and Guler- Edwards, 2007; Imamoglu and Imamoglu, 2007; Imamoglu, Karakitapoglu-Aygun) focused mostly on the respondents themselves, and architectural studies generally focused on the physical environments (e.g. Wohlwill, 1973). In addition to these findings, our findings support that people perceive and rate the environment and the attributes of assumed residents both regarding space qualities and by reflecting their own personality, beauty and evaluation. Therefore, the environment may be both independent from and in the head of the beholder.

To sum up, using interior spaces close to the real environments may be another new contribution to the literature though; controlling variables and obtaining a smooth complexity difference are harder to achieve comparing to manipulated images and settings. Hence, manipulated interiors would be useful in terms of controlling variables to explore the effect of complexity. Besides we used the ratings of three movies representing low-intermediate and high complexity levels which may be a limitation for the study, the ratings for more spaces would be more reliable. Also, the characters in the movie clips might have affected the judgments of respondents for assumed residents. Future studies should increase the number of spaces, eliminate the

characters from the interior, and use CAD models to reproduce or create such spaces, controlling variables, to obtain more valuable results. Age can be considered as another factor not explored in this study; for example preferences as well as familiarity levels of adults and young people may differ. As mentioned before, immediate sensation of stimuli, such as color, light, and complexity, is relatively important, for young people; which decrease with age (Pennartz and Elsinga, 1990). Lastly, the styles of the interiors were another limitation of this study; only modern or traditional layouts may be used for further studies to avoid the differences caused by modern trends and fashions. This study and its results may be helpful to interior architects while designing interiors, directors while designing the decors, researchers who study on the complexity and liking and the ones exploring the human psychology and its effect on evaluation and preferences.

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APPENDIX A

Appendix A1. Space Qualities of the Residential Interior from movies

A1.1. *Movie 1- 27 Dresses (A. Fletcher, 2008)*

This clip is twenty three seconds long and it is from the movie 27 Dresses which was filmed in 2008. According to the perceived complexity level, the space was rated as intermediate complex. The genre of the movie is comedy/romance and spaces are from today's world. Main theme is again love and weddings so movie has a quite happy and romantic atmosphere. Spaces are familiar, known ones and similar to our houses. Style is between traditional and modern hard to categorize it under one of these styles. Furniture is traditional nevertheless there are lots of technological elements inside like computers, lcd TVs, printers etc. The clip starts with a character walking in the space and turning lights on.

Architectural Elements: Respondent may not see the ceiling though, from general layout, it is not very high, just like the ones used to be in regular residences. There are two windows on the wall. Walls are dark in color. Atmosphere is warm and familiar. Space is intermediate complex according to the numbers of stimulants in the space. It has some similarities with "Eastern Promises" in order to design of the house. It doesn't look like well designed at all. Walls are ornamented with white plaster. Space is tidy however because of color choices and furniture style it looks crowded. Camera does not move much inside but has a broader shot showing the whole space. Floors are light brown wood paneling but there is a rug on it. Materials are concrete walls, plaster ornaments on it, wooden floor, couches made of fabric and wood bases. Material choices are random therefore cannot be called successfully or accurately done. But space is traditional and unimpressive. There is no connection with outdoor space. Even windows do not give any clue about outside.

Lighting: There is no natural light inside. The quality and amount of light are satisfying. There are main lighting fixtures on ceiling (character turns them on while walking inside), one table lamp and one floor lamp. It gives the impression of late hours in the night. Texture of sofa is taking attention. Colors are selected randomly. There is no order or style. Pale red cushions, pale blue couches, green chair, yellow-light blue curtains do not create a style. Walls are somehow depressing with their dark color. But it is mollified with the help of white contours.

Furniture: The types of furniture are couch, sofa, and some desks for storing TV, computer and lamps. Side tables and coffee tables are made of wood and glass. There are lots of objects and elements are hanging on the walls. This makes space looks more crowded. Working table is very crowded with stuff and accessories even indoor plants. It looks like a familiar, regular studying place.

A1.2. ***Movie 2- Disturbia (D.J. Caruso, 2007)***

This clip is seventeen seconds long; it is from the movie "Disturbia" which was filmed in 2007 and was rated at the maximum complexity level. The genre of the movie is crime/mystery and spaces belong to today's world. General theme of the movie is voyeurism. Therefore the atmosphere is mysterious and tense. The space is traditional and the furniture was located without order. Selection of furniture, accessories are randomly done and space is quite crowded. Movie clip starts with a character opening the door and entering in space.

Architectural Elements: The space is crowded and the numbers of stimulants are quite high. Architectural elements are not taking attention much though, in general

low ceiling, dark walls and with windows on. However windows are small and amount of natural light entering the space is not satisfying. Wood is highly used in the space which makes space even more boring and familiar. The space is tidy however because of amount of the objects, books, decorating objects it looks messy. The camera moves in the space and close ups to family pictures and statuettes. The space is really full with books, personal stuff and memories. Therefore it can be called unsurprising. Materials are concrete walls painted brown which makes space cramped and boring. The floor is dark brown wood paneling. There is not a style but definitely traditional rather than a modern space. The space is a memorial box full with pictures on the walls, on the desks, personal belongings and can be called "home". There is not much exterior- interior relationship. Only thing is sun light diffusing from window.

Lighting: Quality and amount of light is dissatisfying. The amount of natural light coming from windows is not efficient and enough. There are some table lamps though none is turned on in the space. It is a depressing, dark space which bores and makes respondent feel sad and overwhelmed. Dark color of walls increases the cramped feeling in the space. Everything is dark in color and depressive.

Furniture: The types of furniture are a couch, bookshelves and tables. Couch is made of leather and shelves are made of wood. Amount of accessories and objects are stored in bookshelves and on walls is considerably high and gives the impression of being untidy. Furniture colors are brown and dark too supporting the heavy, suffocated atmosphere in the space.

A1.3. ***Movie 3- Down with Love (P. Reed, 2003)***

The third clip is seventeen seconds long; it is from the movie "Down with Love" which was filmed in 2003 and was rated as intermediate complex. Genre of the movie is comedy/romance and takes place in 1960s New York. The world depicted in the movie has retro style, colorful characters and interiors. Therefore; general atmosphere is happy, dynamic and full of romance. Buildings are well designed and has a modern rather than a traditional look. The clip starts with two characters entering a space.

Architectural elements: The space is white in general and has the ceiling is more than one storey high. On the right side of the space there are a shelf, a huge painting on the wall and a sculptural spiral staircase, however all threads and rises of the staircase is open and can be seen which gives an impression of flying. While camera is moving in the meantime curtains open and leave respondent with huge windows facing balcony, skyscrapers, and the whole city. Window frames are white supporting the main atmosphere. Space has a leveling inside though whole floor, stairs and ceiling are white, therefore it is hard to realize. Therefore number of the arousals is not high again but unlike others this time space has some color on furniture and accessories. There is a fireplace in the middle of the space which is also used for coffee table, and colorful seating units are located around it. Materials are concrete on walls and ceiling, floor material is shiny looks like epoxy.

Lighting is very satisfying in the space. There are spots on the ceiling, huge lamps hanging on the ceiling around staircase, and 2 big lampaders in sitting area. Natural

light is also a major light source in the space. Space is poor in terms of texture. Floors, walls and ceiling are neat and shiny, only colorful paintings on the walls give a different impression and mollify the smooth, shiny and strict surfaces. Furniture and accessories do not have any texture on them. Usage of colors is successful inside, unlike the other two low simple clips. Main color is white as in "while you were sleeping" though this time pink, blue, yellow and green used to a degree. As a result, a happy, joyful and very impressive space is obtained. Curtains are light pink, sitting unit is pink, only pillows are blue, green and yellow. Green indoor plants also assist this bright, colorful space.

Furniture: Sitting unit is made of fabric, and looks comfortable. There are some mobile coffee tables made of steel and glass. Accessories are generally vases and in different colors. Furniture and accessories look like the major elements to take attention, and are fit in this happy, colorful world.

A1.4. ***Movie 4- Eastern Promises (D. Cronenberg, 2007)***

This movie clip is twenty three seconds long. It is taken from the movie "Eastern Promises" which was filmed in 2007 and the space was rated as the simplest interior in terms of perceived complexity. The genre of the movie is crime/drama and it takes place in 2006 November of London. The movie is about a Russian mob and about their life and their actions. Because it involves violence movie has a dark and depressing atmosphere. It is an irritating, cold and scary world. Spaces are traditional rather than modern. The selected space is the living room of a regular family. It is considerably familiar to the respondent because of similarities with everyday spaces.

The movie clip starts with two characters sitting around a table and working on something. This time rather than the characters, the camera moves.

Architectural Elements: Space is very traditional and there are high numbers of stimulants around. The ceiling is low. The walls are covered with wallpapers. There is an opening on the left side most probably connecting space to the kitchen. There is a fire place on the right side, though it is closed and most probably not for usage. Emphasizing the symmetry there is a door in the middle of the facing wall which opens to garden. Interior- exterior relationship is highlighted in this clip. Numbers of the furniture and accessories are limited comparing to Minority Report or Disturbia; color, texture and lighting make it even more complex. Camera moves to close-up the space so the respondent may see the style of the house. Wooden elements, dark, heavy colors, arrangement of furniture and makes space a depressive and unhappy place. Materials are parquet on the floor, white wooden window framings, and wallpapers. The space is cozy and looks like a house.

Lighting is poor with respect to the cold and depressive atmosphere of the movie in general regarding mafia and weather in London. Natural light is the main source in the space; respondent cannot see any other artificial light. It looks like a depressing and unhappy day at home. In terms of texture and color, this video is rich compared to Gattaca and While you were sleeping. First of all, the wallpaper is quite arousing. The room would look really different with only white walls, now it looks a bit more complex and crowded. There are lots of accessories hanging on the wall. Paintings, photographs, some decorative objects, the shelves are full of objects too. Grey curtains and rugs support the depressive mood inside. The predominant color is brown (wooden objects) inside which makes the space familiar but old-fashioned.

Furniture consists of a table, chairs, side table and shelves. They are not in order, randomly placed in the space, therefore space looks poorly designed. It is hard to talk about a style as well. Space mainly looks old, unfashionable and traditional. The furniture is made of wood and fabric. We may observe some indoor plants too. The space is unimpressive and suffocating.

A1.5. ***Movie 5- Garden State (Z. Braff, 2004)***

The clip is twenty nine seconds long and it is from the movie "Garden State" which was filmed in 2004. The space was rated at the high complexity level. The genre of the movie is drama/comedy and spaces are close to real world. The movie is related to dreams and wishes so has a fairy tale atmosphere. A depressive, regretful and introverted character meets another extraverted, crazy and hyperactive one. So the spaces change according to the owner of the scene. The style is traditional. The clip starts two characters talking in a messy, cramped and colorful room.

Architectural Elements: The space is really small and respondent cannot see the ceiling though according to impression it is low as in regular houses. The walls are in a vivid pink color which makes the space seem even more crowded. There are three windows in the space. The door is in same color with walls. The atmosphere is really warm regarding all the elements filling in the space. The number of stimulants is fairly high and the space is suffocated. There are colorful rugs on the floor. Wood is another material used inside which supports the traditional style of the house. There is no order in design; it can be called a poorly designed space. The furniture and materials are randomly selected. The space is traditional and unimpressive. The

windows are hidden behind colorful curtains. There is neither an outdoor visual connection nor indoor plants.

Lighting is satisfying. Day light illuminates space efficiently. There are some additional bedside lamps which aren't used at that moment. The colors are very dominant and the space has a chaotic appearance. The space is textured and full with decorative elements which are randomly selected. The space is cramped and suffocated. There are wallpapers, accessories on the walls, dolls, personal belongings which make space looks messy. The texture of curtains is traditional. The space is poorly designed in general.

Furniture: There is a bed in the middle of the room. There are chairs and side tables all in different styles. There is no harmony in furniture choices. The materials are different in color. The storage units are made of plastic. Some of the side tables are made of wood. The decorative elements are not in order, randomly distributed to the room. The room does not look like designed accurately according to furniture, color choices.

A1.6. ***Movie 6- Gattaca (A. Niccol, 1997)***

The clip is nineteen seconds long and it is from the movie Gattaca which was filmed in 1997. Its ratings were of intermediate complexity level. Genre of the movie is sci-fi and the world depicted in it is a shiny, scientific and antiseptic utopian world which belongs to future times. Gattaca world is a perfect world for those who are genetically altered or gifted however cold and unforgiving for the rest. Therefore; general atmosphere is set on this particular scheme, techno futuristic approach,

modern architectural language with avant-garde style. Modern architecture especially Frank Lloyd Wright's buildings depict a world ruled by science. Movie clip starts with two characters entering the space and one character sitting on a chair welcomes them. The space is very simple according to the number of stimulants.

Architectural elements are selected accurately to create a cold minimalist atmosphere. Walls are concrete and have grey paint on without ornaments; ceiling is approximately 2 storeys high. Glass is an additional material used inside filling the openings. In the first scene, respondent is able to see an opening and connection to the garden. When camera starts to move, respondent may distinguish the style of the house. There are only openings on grey walls rather than window frames and a highlight on the high ceiling. Materials are concrete, glass, polished wood panels on the floor and a stainless steel stair. All materials are emphasizing the antiseptic, scientific world of Gattaca and interior looks like a factory rather than a place called "home". However in the second scene the respondent still observes the approach towards nature from openings facing a pale green garden which supports the cold atmosphere of the house.

Lighting: Quality and amount of light is satisfying in addition to that there are reflections of sun rays on the wall which give a clue about other opening that lets direct sun light to the house. There is not any artificial light respondent may see in the space. Space is also poor in terms of texture and color. Walls only have joints and openings to create a pattern. Main colors are dark brown on floor, grey on walls and black on furniture. Even characters wear clothes in dull colors.

Furniture consists of a chair, a tool and a coffee table. They are made of leather and steel. Coffee table's surface is glass regarding the materials used in space. There is a huge staircase with steel stairs dominating the space. When camera keeps moving it shows the sculptural stair to the respondent which stands alone between grey walls.

A1.7. ***Movie 7- Love Actually (R. Curtis, 2003)***

This clip is twenty three seconds long and it is from the movie "Love Actually" which was filmed in 2003. It was perceived as having low complexity by respondents. Genre of the movie is drama/romance and spaces belong to today's world. Theme is love and movie is about eight couples falling in love, falling out of love, some are looking to have an affair, some are in the period of mourning; a capsule summary of reality. Love begins and love ends. Generally a romantic atmosphere is controlling the movie and spaces. Spaces are warm, intimate and familiar to the respondent's daily world. Architectural style is familiar and generally modern rather than traditional. The clip starts with two characters entering the downstairs of a space.

Architectural elements: It looks like a "Barbie House" for respondent because we can both see downstairs and upstairs together. There is a stair leading the characters to upstairs which is a bedroom. Space is intermediate complex according to the numbers of arousals. Architectural elements are simple and designed according to modern architecture however furniture or accessories which belong to character makes space unique and homelike. Ceiling is not very high and it is inclined in some points. Walls are smooth and have white-light grey color. It is a small space comparing to the previous clips. In addition to that, there is only one small opening

in the space unlike previous examples. It is a small window but respondent cannot see the outside view. Camera does not move at all. Respondent watches the clip in same direction. Materials are concrete on walls and ceiling, floor looks similar to the walls most probably it is made of ceramic tiles. Even without accessories and personal stuff, space does look like previous clips, with human tracks and clothes it is more like a lovely house. There is not any connection to the outside world, or an indoor plant.

Lighting: Quality and amount of light is a bit low comparing to the previous clips. There is only artificial light usage in the space. There are two bedside lamps and one lampader in the space. In terms of texture walls are smooth and without ornament. There is only one painting on the wall which is very textured and complex. Colors are generally pale. Grey-white walls dominate the space. Colors inside are not very bright, they support the calming atmosphere of the bedroom. Only a teddy-bear with red pullover takes attention with its color. Rest of the elements is in harmony with the space.

Furniture consists of a double bed, a storage unit, a couch and two armchairs. They are made of fabric and give a cozy impression to the space. Brown storage unit stands in the right side of the space. Its color is appropriately selected, because wooden brown units are more likely the ones people tend to use in real bedrooms. There is a TV facing the bed which is also a familiar thing from real life.

A1.8. ***Movie 8- Minority Report*** **(S. Spielberg, 2002)**

This clip is thirty two seconds long and it is from the movie “Minority Report” which was filmed in 2002. The space was rated as the most complex interior by respondents. The genre of the movie is sci-fi/action and the spaces are from the world of 2050s. In this world system works perfect till it comes after you, future is predictable and choices of men are predictable as well. The crime is virtually eliminated with the help of an elite law enforcing squad "Precrime". They use three genetically altered humans (called "Pre-Cogs") with special powers to see into the future and predict crimes beforehand. According to society system is flawlessness steadfastly. The world is cold; people are not free because their choices are already known. The movie clip starts with a character entering the space. Camera and character move synchronically.

Architectural Elements: The space consists of a high number of stimulants. Architectural elements are selected regarding the 2050’s world. The walls and the ceiling are made of glass and steel frames. The ceiling is not higher than one storey. It is a night scene therefore; there are reflections of artificial lights in the space. The character enters to the space with a flying car which means house has no connection to the ground therefore interior space has its own garden and nature within the glass walls. The floor is shiny and looks like huge granites. There is a huge space offering kitchen, sitting area and studying area. There is also a bedroom close to main space where two luminous huge columns dominate the space. The atmosphere is really cold and even though there are a lot of objects furniture and decorative elements in the space. The style is high-tech and material selections respect this style therefore it is modern rather than traditional. The whole space acts as a huge window in some

points. It may also be a reference to the publicity of the private lives and the fact that people are followed and being watched by government and some services.

Lighting: Blue colored lighting was used in this space. It is unusual in terms of the color and amount. There are high and strong reflections in the space which gives a totally different impression. There is no natural light. But the aquariums and the gardens inside of walls are lit as task lighting. There are some fixtures attached to the ceiling. There are floor lamps illuminating the huge space. The lighting in bedroom is different too. The huge luminous columns are used as lighting fixtures. There are lots of reflections again in this space too. The space is rich with textures. First of all decorative elements and other stuff are giving a natural texture to the space. There are steel patterns on the glass surfaces. The space looks like messy and full with objects. The colors are cold generally white, black and cold blue. Space is pale and unfriendly.

Furniture: There is lots of furniture in the space. Most are made of fabric. The surfaces look like made of metals, shiny and cold. The walls are grey- white supporting this atmosphere. Generally technological elements fill the space. They all create a cramped, extra occupied and a cold space.

A1.9. ***Movie 9- While You Were Sleeping (J. Turteltaub, 1995)***

This movie clip is twenty two seconds and it is from the movie "While you were sleeping" which was filmed in 1995. According to the perceived complexity level is rated as having low complexity. Genre of the movie is romance and spaces are quite close to the real life spaces which belong to present time. Movie is based on love and

dreams of the main character towards a man who goes into coma. However the space taken from the movie belongs to rich character lives in a skyscraper and space is designed according to modern architecture. Luxury is the main feature of the house and comparing to the space in Gattaca it is closer to a house even still there is a lack of tracks in the residence. The clip starts with a character walking through the space. First of all respondents see the white walls and low ceiling. Numbers of elements are a bit more than Gattaca though because of appropriate colors space still can leave the impression of simple.

Architectural elements: Huge windows are facing not a gazebo but the city. Only two big columns are blocking the vision in some points. But they are also colored in white and they stand symmetrically therefore not disturbing the respondent. All finishing are neat and hide well. Floor is also white so hard to distinguish it from parapet under windows or ceiling. There is a unity in whole space. There stands a bar made of ceramic tiles in the right side of the space.

Lighting: Quality and amount of light is satisfying. The respondent can see artificial lights on ceiling (spots) from the beginning of the clip. There is task lighting on the left side of the space on a painting. Another floor lamp stands next to the column and properly diffuses light. When camera moves, respondents may observe the table lamps and the spots on the bar used again as task lighting. It is hard to talk about textures in this space too. Only ceramic tiles of bar gives a different impression in the space. Colors are mainly, white on ceiling, walls and ground. Window frames are dark brown.

Furniture is dark in color. Bar is lighter brown therefore takes more attention than the other parts of the space. There is an indoor plant on the left, attracts attention with its green color and sculptural look. Couches are made of fabric, side tables are made of stainless steel and glass, number of furniture is high though because of materials and color choices space seems to be tidy and neat. Bar stools are made of stainless steel and leather seating. Accessories are generally black and white therefore don't arouse respondent much.

Appendix A2. The residential interior spaces from the movies

Figure A2.1. The interior space from the movie “27 Dresses”

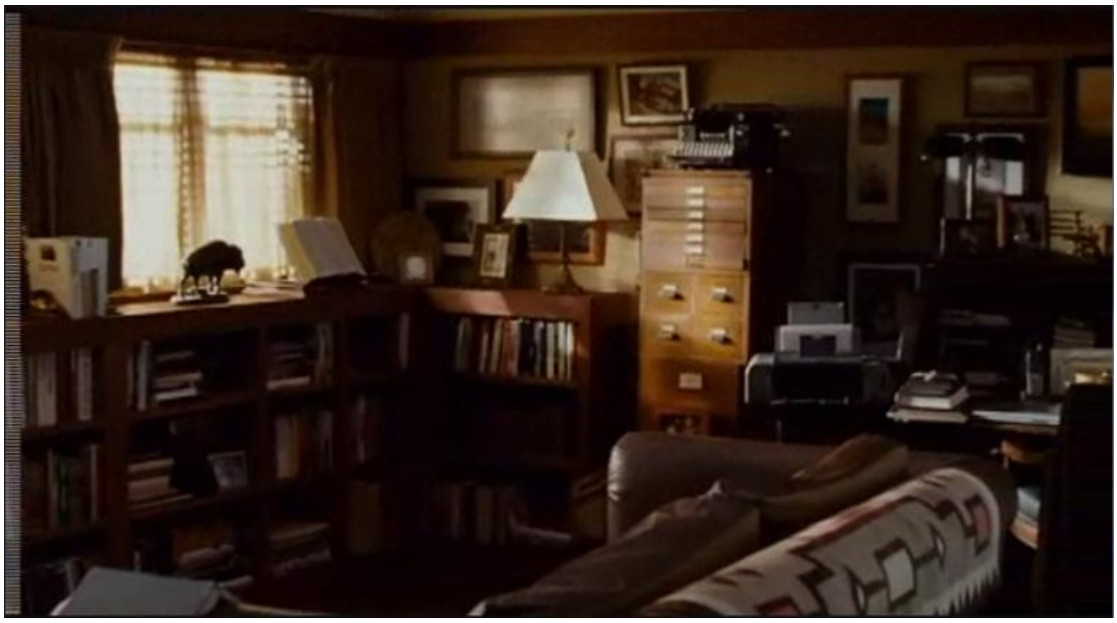

Figure A2.2. The interior space from the movie “Disturbia”

Figure A2.3. The interior space from the movie “Down with Love”

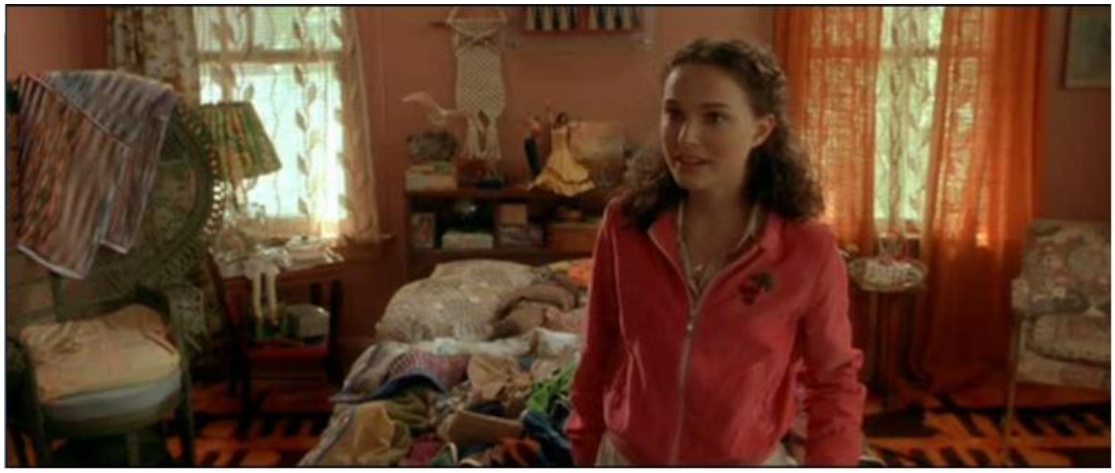

Figure A2.4. The interior space from the movie “Garden State”

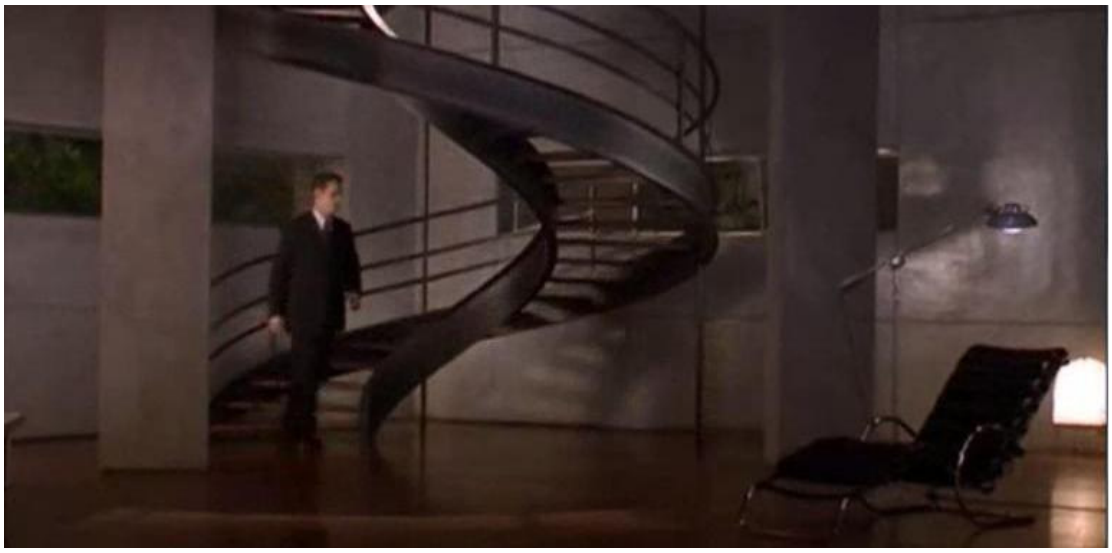

Figure A2.5. The interior space from the movie “Gattaca”

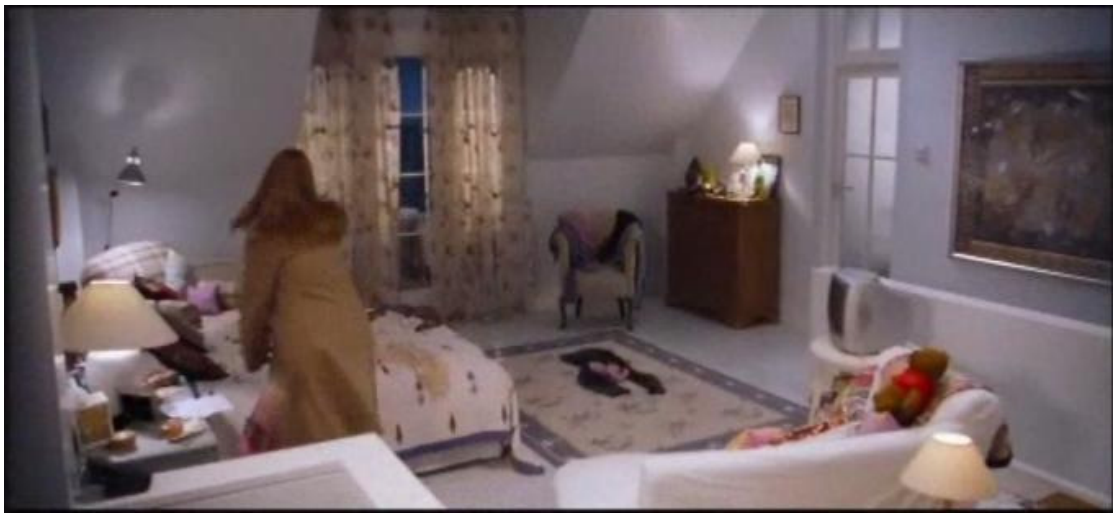

Figure A2.6. The interior space from the movie “Love Actually”

Figure A2.7. The interior space from the movie “Minority Report”

Figure A2.8. The interior space from the movie “While You Were Sleeping”

APPENDIX B

Appendix B1. Questionnaire Form

SİNEMA MEKANLARI ARAŞTIRMASI

Bu çalışma sizin değişik konulardaki görüşlerinizi anlamaya yöneliktir. **Kesinlikle doğru veya yanlış cevap yoktur. Kimliğinizle ilgili bilgi istenmemektedir.** Önemli olan maddeleri görüşlerinizi en iyi yansıtacak şekilde işaretlemenizdir. Katkılarınız için teşekkür ederiz. Araştırmayla ilgili sorularınız için: yaptann@bilkent.edu.tr

1- İzlediğiniz filmlerdeki **fiziki mekanları** aşağıda verilmiş sıfat çiftlerine göre değerlendiriniz.

Film 1 (same questions used 9 times for all 9 movie clips)
Bu filmi daha önce **izledim** □ **izlemedim** □

01	**Basit** (simple)	1	2	3	4	5	6	7	**Karmaşık** (complex)
02	**Tanıdık** (familiar)	1	2	3	4	5	6	7	**Tanıdık olmayan** (unfamiliar)
03	**Kötü tasarlanmış** (poorly designed)	1	2	3	4	5	6	7	**İyi tasarlanmış** (well designed)
04	**Güzel** (beautiful)	1	2	3	4	5	6	7	**Çirkin** (ugly)
05	**Sakinleştirici** (calming)	1	2	3	4	5	6	7	**Heyecan verici** (exciting)
06	**Hoş** (pleasant)	1	2	3	4	5	6	7	**Hoş olmayan** (unpleasant)
07	**Sıkıntı verici** (cramped)	1	2	3	4	5	6	7	**Ferah** (spacious)
08	**Rahat** (comfortable)	1	2	3	4	5	6	7	**Rahatsız** (uncomfortable)
09	**Etkileyici olmayan** (unimpressive)	1	2	3	4	5	6	7	**Etkileyici** (impressive)
10	**Sıradan** (usual)	1	2	3	4	5	6	7	**Sıradan olmayan** (unusual)
11	**Beğenmedim** (disliked)	1	2	3	4	5	6	7	**Beğendim** (liked)

Sizin önereceğiniz sıfat varsa yazınız…….

2- İzlemiş olduğunuz filmlerdeki mekanların olası sahiplerini zihninizde nasıl canlandırdığınızı belirtiniz.

01	**Mutsuz** (unhappy)	1	2	3	4	5	6	7	**Mutlu** (happy)
02	**Güvenilir** (trustworthy)	1	2	3	4	5	6	7	**Güvenilmez** (dishonest)
03	**Soğuk** (cold)	1	2	3	4	5	6	7	**Cana yakın** (warm)
04	**İçedönük** (introverted)	1	2	3	4	5	6	7	**Dışadönük** (extroverted)
05	**Arkadaş canlısı** (friendly)	1	2	3	4	5	6	7	**Arkadaş canlısı olmayan**(unfriendly)
06	**İyi** (good)	1	2	3	4	5	6	7	**Kötü** (bad)

Sizin önereceğiniz sıfat varsa yazınız……

3. Lütfen aşağıdaki ifadelerin her biri için ne derece katılıp katılmadığınızı en iyi yansıtan sayıyı işaretleyin.

1	**2**	**3**	**4**	**5**	**6**	**7**
Hiç katılmıyorum	Katılmıyorum	Pek katılmıyorum	Ne katılıyorum, ne katılmıyorum	Biraz katılıyorum	Katılıyorum	**Tamamen katılıyorum**

01.	Kendimi aileme hep yakın hissedeceğime inanıyorum.	1	2	3	4	5	6	7
02.	İnsanlarla ilişki kurmakta güçlük çekiyorum.	1	2	3	4	5	6	7
03.	Kendimi duygusal olarak toplumun dışında kalmış gibi hissediyorum.	1	2	3	4	5	6	7
04.	Kendimi duygusal olarak aileme çok yakın hissediyorum.	1	2	3	4	5	6	7
05.	Kendimi yakın çevremden duygusal olarak kopmuş hissediyorum.	1	2	3	4	5	6	7
06.	Hayatta gerçekleştirmek istediğim şeyler için çalışırken, ailemin sevgi ve desteğini hep yanımda hissederim.	1	2	3	4	5	6	7
07.	Kendimi yalnız hissediyorum.	1	2	3	4	5	6	7
08.	Ailemle aramdaki duygusal bağların hayatta yapmak istediğim şeyler için bana güç verdiğini düşünüyorum.	1	2	3	4	5	6	7
09.	Kendimi diğer insanlardan kopuk hissediyorum.	1	2	3	4	5	6	7
10.	Kendimi sosyal çevreme duygusal olarak yakın hissediyorum.	1	2	3	4	5	6	7

4. Hayatınızdan genel olarak ne derece memnun olduğunuzu en iyi yansıtan sayıyı işaretleyin.

Hiç memnun değilim	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Çok memnunum**

APPENDIX C

Appendix C. Results

Table C.1. Mean ratings of nine movie clips (m= mean, sd= standard deviation)

Mean Ratings	M1	SD1	M2	SD2	M3	SD3	M4	SD4	M5	SD5	M6	SD6	M7	SD7	M8	SD8	M 9	SD9
Simple-Complex	3,22	1,43	4,83	1,87	3,95	1,60	2,58	1,63	3,97	2,20	3,81	2,65	2,96	1,43	5,72	1,50	3,04	1,37
Fam-Unfam	3,43	1,49	3,80	1,82	4,96	1,81	3,26	1,72	3,18	1,74	4,99	1,49	3,28	1,64	5,37	1,82	4,22	1,59
Poor-Well design	4,21	1,34	3,34	1,61	5,48	1,51	3,29	1,46	2,96	1,53	5,03	1,39	4,78	1,36	5,10	1,55	4,77	1,43
Ugly-Beautiful	4,42	1,41	3,28	1,54	5,08	1,90	3,50	1,40	3,32	1,71	4,50	1,53	4,82	1,55	4,41	1,80	4,73	1,49
Calming-exciting	3,35	1,46	3,74	1,28	4,32	2,08	3,32	1,09	3,94	1,30	4,09	1,50	3,18	1,51	5,03	1,52	3,29	1,53
Unp-pleasent	4,64	1,42	3,34	1,56	5,16	1,86	3,37	1,53	3,33	1,69	4,54	1,56	4,93	1,63	4,52	1,71	4,88	1,46
Cramp-Spacious	4,39	1,54	2,68	1,63	5,88	1,42	3,04	1,72	2,91	1,48	4,33	1,70	5,04	1,48	3,97	1,70	4,82	1,82
Unc-comfortable	4,72	1,49	3,04	1,64	4,89	1,90	3,45	1,51	3,50	1,91	3,80	1,66	4,73	1,80	3,58	1,63	4,57	1,62
Uni-impressive	3,55	1,42	2,73	1,62	5,68	1,55	2,35	1,23	2,44	1,38	4,87	1,54	4,02	1,66	5,51	1,62	4,56	1,54
Usual-unusual	3,04	1,24	3,04	1,51	5,87	1,43	2,12	1,18	2,26	1,28	5,18	1,48	3,68	1,70	5,96	1,37	4,58	1,40
Disliked-liked	4,11	1,64	2,75	1,56	5,04	1,81	2,80	1,57	2,70	1,70	4,31	1,66	4,83	1,59	4,64	1,87	4,44	1,66
Unhappy-happy	4,12	1,58	3,04	1,65	5,72	1,68	3,01	1,83	4,39	1,83	3,22	1,43	5,07	1,64	3,07	1,44	3,82	1,61
Dishonest-trust	4,31	1,34	4,18	1,69	3,79	1,61	4,67	1,63	4,16	1,65	3,18	1,64	4,59	1,76	3,54	1,77	4,06	1,50
Cold-warm	4,18	1,68	3,12	1,67	4,96	1,85	3,35	1,83	4,79	1,64	2,46	1,37	5,19	1,45	2,62	1,42	3,29	1,60
Intro-extroverted	3,88	1,49	2,71	1,52	5,15	1,74	2,83	1,54	4,70	1,70	3,50	1,73	4,64	1,57	3,26	1,57	3,71	1,56
Unfriedly-friend	4,01	1,43	3,16	1,55	4,39	1,86	3,38	1,64	4,42	1,75	2,83	1,52	4,69	1,74	3,05	1,45	3,42	1,40
Bad-good	4,58	1,20	4,12	1,55	4,64	1,57	4,41	1,46	4,68	1,47	3,48	1,38	5,34	1,34	4,11	1,35	4,31	1,21

Table C.2. Factor Analysis of mean ratings of nine movie clips for Part 1

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,320	39,276	39,276	4,320	39,276	39,276	4,291	39,010	39,010
2	2,363	21,481	60,756	2,363	21,481	60,756	2,392	21,747	60,756
3	,766	6,966	67,722						
4	,743	6,756	74,479						
5	,544	4,941	79,420						
6	,532	4,834	84,255						
7	,481	4,372	88,627						
8	,399	3,624	92,250						
9	,317	2,885	95,136						
10	,302	2,741	97,877						
11	,234	2,123	100,000						

Extraction Method: Principal Component Analysis.

Table C.3. Factor Analysis of mean ratings of nine movies for Part 1

	Component	
	1	2
Mean simple-complex	,006	,748
Mean familiar-unfamiliar	-,046	,718
Mean poorwell-designed	,791	,232
Mean uglybeautiful	,826	-,191
Mean calming-exciting	-,193	,642
Mean unpleasent-pleasent	,776	-,391
Mean cramped-spacious	,714	-,086
Mean uncomfortable-comfortable	,586	-,418
Mean unimpressive-impressive	,793	,245
Mean usualunusual	,422	,646
Mean disliked-liked	,826	,039

Table C.4. Factor Analysis of mean ratings of three movies Part 2

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,527	42,111	42,111	2,527	42,111	42,111	1,891	31,514	31,514
2	1,232	20,527	62,638	1,232	20,527	62,638	1,867	31,124	62,638
3	,691	11,514	74,152						
4	,644	10,740	84,891						
5	,539	8,988	93,879						
6	,367	6,121	100,000						

Extraction Method: Principal Component Analysis.

Table C.5. Factor Analysis of mean ratings of three movies Part 2

	Component	
	1	2
Mean unhappy-happy	,185	,752
Mean dishonest-trustworthy	,856	,154
Mean cold-warm	,221	,717
Mean introverted-extroverted	-,047	,750
Mean unfriendly-friendly	,547	,449
Mean bad-good	,879	,009

Table C.6. Intercorrelations between mean ratings of nine movies

Correlations

		Meanarousal	Meansc	Mean Famunfam	Meancalmexc	Meaneval uation	Meanhapp ycompos	Meantrust compo	Meanrelat edness	selfhappy
Meanarousal	Pearson Correlation	1	,730**	,828**	,687**	-,121	-,003	-,220*	,020	-,001
	Sig. (2-tailed)		,000	,000	,000	,201	,972	,019	,836	,992
	N	113	113	113	113	113	113	113	113	113
Meansc	Pearson Correlation	,730**	1	,407**	,276**	-,021	,053	-,192*	,033	-,045
	Sig. (2-tailed)	,000		,000	,003	,827	,579	,041	,728	,639
	N	113	113	113	113	113	113	113	113	113
MeanFamunfam	Pearson Correlation	,828**	,407**	1	,352**	-,067	,055	-,152	,117	,143
	Sig. (2-tailed)	,000	,000		,000	,481	,561	,107	,217	,130
	N	113	113	113	113	113	113	113	113	113
Meancalmexc	Pearson Correlation	,687**	,276**	,352**	1	-,200*	-,139	-,159	-,141	-,147
	Sig. (2-tailed)	,000	,003	,000		,034	,142	,093	,135	,121
	N	113	113	113	113	113	113	113	113	113
Meanevaluation	Pearson Correlation	-,121	-,021	-,067	-,200*	1	,424**	,287**	,132	,125
	Sig. (2-tailed)	,201	,827	,481	,034		,000	,002	,162	,187
	N	113	113	113	113	113	113	113	113	113
Meanhappycompos	Pearson Correlation	-,003	,053	,055	-,139	,424**	1	,273**	,315**	,141
	Sig. (2-tailed)	,972	,579	,561	,142	,000		,003	,001	,138
	N	113	113	113	113	113	113	113	113	113
Meantrustcompo	Pearson Correlation	-,220*	-,192*	-,152	-,159	,287**	,273**	1	,271**	,235*
	Sig. (2-tailed)	,019	,041	,107	,093	,002	,003		,004	,012
	N	113	113	113	113	113	113	113	113	113
Meanrelatedness	Pearson Correlation	,020	,033	,117	-,141	,132	,315**	,271**	1	,646**
	Sig. (2-tailed)	,836	,728	,217	,135	,162	,001	,004		,000
	N	113	113	113	113	113	113	113	113	113
selfhappy	Pearson Correlation	-,001	-,045	,143	-,147	,125	,141	,235*	,646**	1
	Sig. (2-tailed)	,992	,639	,130	,121	,187	,138	,012	,000	
	N	113	113	113	113	113	113	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table C.7. Intercorrelations between mean ratings of three perceived complexity levels

Correlations

		Arousal	simpleco mplex	familiarun familiar	calminge xciting	evaluation	happyco mposite	dishonest trust	relatedness	selfhappy
Arousal	Pearson Correlation	1	,711**	,762**	,623**	,029	-,030	,012	,051	,117
	Sig. (2-tailed)		,000	,000	,000	,762	,755	,898	,592	,218
	N	113	113	113	113	113	113	113	113	113
simplecomplex	Pearson Correlation	,711**	1	,343**	,164	,134	,111	,050	,001	,030
	Sig. (2-tailed)	,000		,000	,083	,158	,242	,602	,994	,754
	N	113	113	113	113	113	113	113	113	113
familiarunfamiliar	Pearson Correlation	,762**	,343**	1	,194*	-,134	-,093	-,037	,153	,216*
	Sig. (2-tailed)	,000	,000		,039	,158	,329	,701	,106	,022
	N	113	113	113	113	113	113	113	113	113
calmingexciting	Pearson Correlation	,623**	,164	,194*	1	,081	-,073	,016	-,065	-,020
	Sig. (2-tailed)	,000	,083	,039		,394	,443	,862	,497	,835
	N	113	113	113	113	113	113	113	113	113
evaluation	Pearson Correlation	,029	,134	-,134	,081	1	,294**	,249**	,142	-,039
	Sig. (2-tailed)	,762	,158	,158	,394		,002	,008	,135	,683
	N	113	113	113	113	113	113	113	113	113
happycomposite	Pearson Correlation	-,030	,111	-,093	-,073	,294**	1	,106	,087	-,066
	Sig. (2-tailed)	,755	,242	,329	,443	,002		,263	,358	,486
	N	113	113	113	113	113	113	113	113	113
dishonesttrust	Pearson Correlation	,012	,050	-,037	,016	,249**	,106	1	,181	,078
	Sig. (2-tailed)	,898	,602	,701	,862	,008	,263		,055	,413
	N	113	113	113	113	113	113	113	113	113
relatedness	Pearson Correlation	,051	,001	,153	-,065	,142	,087	,181	1	,646**
	Sig. (2-tailed)	,592	,994	,106	,497	,135	,358	,055		,000
	N	113	113	113	113	113	113	113	113	113
selfhappy	Pearson Correlation	,117	,030	,216*	-,020	-,039	-,066	,078	,646**	1
	Sig. (2-tailed)	,218	,754	,022	,835	,683	,486	,413	,000	
	N	113	113	113	113	113	113	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table C.8. Intercorrelations between mean ratings of low complexity

Correlations

		M4arousal	M4simple complex	M4famunfam	M4calmex citing	M4evaluation	M4happyc omposite	M4trustco mposite	relatedness	selfhappy
M4arousal	Pearson Correlation	1	,761**	,730**	,526**	-,124	-,203*	-,193*	-,044	,059
	Sig. (2-tailed)		,000	,000	,000	,190	,031	,040	,647	,532
	N	113	113	113	113	113	113	113	113	113
M4simplecomplex	Pearson Correlation	,761**	1	,264**	,230*	,042	-,017	-,025	,038	,057
	Sig. (2-tailed)	,000		,005	,014	,657	,858	,790	,689	,547
	N	113	113	113	113	113	113	113	113	113
M4famunfam	Pearson Correlation	,730**	,264**	1	,084	-,093	-,143	-,143	-,050	,112
	Sig. (2-tailed)	,000	,005		,376	,329	,130	,130	,599	,240
	N	113	113	113	113	113	113	113	113	113
M4calmexciting	Pearson Correlation	,526**	,230*	,084	1	-,266**	-,320**	-,279**	-,100	-,093
	Sig. (2-tailed)	,000	,014	,376		,004	,001	,003	,294	,327
	N	113	113	113	113	113	113	113	113	113
M4evaluation	Pearson Correlation	-,124	,042	-,093	-,266**	1	,544**	,316**	,085	-,010
	Sig. (2-tailed)	,190	,657	,329	,004		,000	,001	,373	,913
	N	113	113	113	113	113	113	113	113	113
M4happycomposite	Pearson Correlation	-,203*	-,017	-,143	-,320**	,544**	1	,337**	,081	-,049
	Sig. (2-tailed)	,031	,858	,130	,001	,000		,000	,393	,604
	N	113	113	113	113	113	113	113	113	113
M4trustcomposite	Pearson Correlation	-,193*	-,025	-,143	-,279**	,316**	,337**	1	,278**	,097
	Sig. (2-tailed)	,040	,790	,130	,003	,001	,000		,003	,308
	N	113	113	113	113	113	113	113	113	113
relatedness	Pearson Correlation	-,044	,038	-,050	-,100	,085	,081	,278**	1	,646**
	Sig. (2-tailed)	,647	,689	,599	,294	,373	,393	,003		,000
	N	113	113	113	113	113	113	113	113	113
selfhappy	Pearson Correlation	,059	,057	,112	-,093	-,010	-,049	,097	,646**	1
	Sig. (2-tailed)	,532	,547	,240	,327	,913	,604	,308	,000	
	N	113	113	113	113	113	113	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table C.9. Intercorrelations between mean ratings of intermediate complexity

Correlations

		M6arousal	M6simple complex	M6famunfam	M6calmex citing	M6evaluation	M6happyc omposite	M6trustco mposite	relatedness	selfhappy
M6arousal	Pearson Correlation	1	,726**	,607**	,677**	-,145	-,011	-,147	,007	,019
	Sig. (2-tailed)		,000	,000	,000	,125	,912	,120	,940	,838
	N	113	113	113	113	113	113	113	113	113
M6simplecomplex	Pearson Correlation	,726**	1	,144	,268**	-,112	,000	-,125	-,126	-,102
	Sig. (2-tailed)	,000		,129	,004	,239	,997	,186	,182	,281
	N	113	113	113	113	113	113	113	113	113
M6famunfam	Pearson Correlation	,607**	,144	1	,111	-,144	-,069	-,122	,164	,136
	Sig. (2-tailed)	,000	,129		,242	,129	,468	,199	,082	,151
	N	113	113	113	113	113	113	113	113	113
M6calmexciting	Pearson Correlation	,677**	,268**	,111	1	-,036	,047	-,046	-,010	,017
	Sig. (2-tailed)	,000	,004	,242		,702	,623	,625	,915	,856
	N	113	113	113	113	113	113	113	113	113
M6evaluation	Pearson Correlation	-,145	-,112	-,144	-,036	1	,146	,224*	,107	,008
	Sig. (2-tailed)	,125	,239	,129	,702		,123	,017	,257	,932
	N	113	113	113	113	113	113	113	113	113
M6happycomposite	Pearson Correlation	-,011	,000	-,069	,047	,146	1	,214*	,017	-,008
	Sig. (2-tailed)	,912	,997	,468	,623	,123		,023	,856	,936
	N	113	113	113	113	113	113	113	113	113
M6trustcomposite	Pearson Correlation	-,147	-,125	-,122	-,046	,224*	,214*	1	,088	,067
	Sig. (2-tailed)	,120	,186	,199	,625	,017	,023		,357	,482
	N	113	113	113	113	113	113	113	113	113
relatedness	Pearson Correlation	,007	-,126	,164	-,010	,107	,017	,088	1	,646**
	Sig. (2-tailed)	,940	,182	,082	,915	,257	,856	,357		,000
	N	113	113	113	113	113	113	113	113	113
selfhappy	Pearson Correlation	,019	-,102	,136	,017	,008	-,008	,067	,646**	1
	Sig. (2-tailed)	,838	,281	,151	,856	,932	,936	,482	,000	
	N	113	113	113	113	113	113	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table C.10. Intercorrelations between mean ratings of maximum complexity

Correlations

		M8arousal	M8simple complex	M8famunfam	M8calmex citing	M8evaluation	M8happyc omposite	M8trustco mposite	relatedness	selfhappy
M8arousal	Pearson Correlation	1	,672**	,739**	,654**	,199*	-,041	-,038	,122	,134
	Sig. (2-tailed)		,000	,000	,000	,034	,666	,688	,197	,157
	N	113	113	113	113	113	113	113	113	113
M8simplecomplex	Pearson Correlation	,672**	1	,238*	,210*	,268**	,109	,049	,099	,104
	Sig. (2-tailed)	,000		,011	,025	,004	,249	,608	,297	,273
	N	113	113	113	113	113	113	113	113	113
M8famunfam	Pearson Correlation	,739**	,238*	1	,196*	,077	-,121	-,121	,169	,148
	Sig. (2-tailed)	,000	,011		,037	,420	,200	,203	,073	,119
	N	113	113	113	113	113	113	113	113	113
M8calmexciting	Pearson Correlation	,654**	,210*	,196*	1	,083	-,052	,013	-,030	,016
	Sig. (2-tailed)	,000	,025	,037		,384	,583	,887	,749	,870
	N	113	113	113	113	113	113	113	113	113
M8evaluation	Pearson Correlation	,199*	,268**	,077	,083	1	,168	,258**	,085	-,070
	Sig. (2-tailed)	,034	,004	,420	,384		,075	,006	,372	,459
	N	113	113	113	113	113	113	113	113	113
M8happycomposite	Pearson Correlation	-,041	,109	-,121	-,052	,168	1	,124	,036	-,099
	Sig. (2-tailed)	,666	,249	,200	,583	,075		,190	,706	,297
	N	113	113	113	113	113	113	113	113	113
M8trustcomposite	Pearson Correlation	-,038	,049	-,121	,013	,258**	,124	1	,018	-,008
	Sig. (2-tailed)	,688	,608	,203	,887	,006	,190		,851	,932
	N	113	113	113	113	113	113	113	113	113
relatedness	Pearson Correlation	,122	,099	,169	-,030	,085	,036	,018	1	,646**
	Sig. (2-tailed)	,197	,297	,073	,749	,372	,706	,851		,000
	N	113	113	113	113	113	113	113	113	113
selfhappy	Pearson Correlation	,134	,104	,148	,016	-,070	-,099	-,008	,646**	1
	Sig. (2-tailed)	,157	,273	,119	,870	,459	,297	,932	,000	
	N	113	113	113	113	113	113	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).