A Study on the Impact of the User's Personality Type on His Interior Design Preferences

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Abstract:
Giving attention to the psychological aspect of the human being, as well as addressing his physical demands, has recently been one of the aspects that have found a place in several fields. This paper attempts to reduce the impact of this psychological aspect (represented in the user's personality type and traits) and its impact on his physical demands (represented in interior design elements) through the literature review and the analysis of 11 previous research studies that discussed personality type and interior design to find the effect of the user's personality type on his interior design preferences. The paper aims to review whether the personality type is a new tool to embark the design process based on the user's traits and characteristics so that the interior space is nothing more than a reflection of the user's personality characteristics that allows the user and the interior space interact behaviorally as one entity.

Introduction:
The design process is a series of steps that involve gathering components from the environment, figuring out how they interact, and arranging them in a certain composition to produce something with function or meaning. Human thoughts and personal experiences play a major role in design. Recently, the awareness of interior design needs and requirements has become more diverse and tangible accompanying the development of living standards and the growth of digital technology. There are psychological dimensions of interior design in addition to the physical ones. Personal traits of the user and their link to design are among the moral aspects as each of us has a unique set of personality traits that influence our behavior and how we engage with the environment around us. (Anwar F. Ibrahim, 2002) "Personality Psychology" a discipline of psychology, has allowed us to investigate what are the individual's personality traits and analyze them in various ways and methodologies, such as the "Big Five model", "Myers Briggs Type indicator MBTI" and "Enneagram". The client's personality traits can be analyzed using these methods, and it is important to recognize the characteristics that define the client's personality, because it influences the client's Preferences and choices.

Literature Review:
1- Personality types & Traits.
Personality is a basic psychological term that may be defined as a unique combination of an individual's emotional, behavioral, and attitude patterns in various contexts (Sandhu & Shaina, 2013). As the word is the unit of language; Traits (characters) are considered as the unit of personality. In classical times, humanity became enamored with the concept of traits, and the scientific approach has merely cleaned up their number, supplied accurate measures, and validated them. (Philip J. Corr, 2009) Personality traits and type can be assessed by different assessment types as Big five model, Enneagram and Myers Briggs Type indicator MBTI.

Figure 1 Big five personality (By authors)

1-1 Big Five
Personality Model:

There are five main personality traits, according to many experts. Evidence supporting this theory has been collected for many years, beginning with D. W. Fiske's research in 1949 and later elaborated upon by other researchers such as Norman (1967), Smith (1967), Goldberg (1981), and McCrae & Costa (1981). (1987). (Power RA, 2015).

The five primary personality factors identified by Goldberg are Table (1) & Figure (1): -

Table 1 Big Five Personality traits (Ackerman, 2021)

Type	Common traits
Extroversion	Sociableness, Assertiveness, Merriness, outgoing nature, Energy, Talkativeness, Ability to be articulate, Fun-loving nature, Tendency for affection, Friendliness, Social confidence.
Agreeableness	Altruism, Trust, Modesty, Humbleness, Patience, Moderation, Tact, Politeness, Kindness, Loyalty, Unselfishness, Helpfulness, Sensitivity, Amiability, Cheerfulness, Consideration.
Conscientiousness	Persistence, Ambition, Thoroughness, Self-discipline, Consistency, Predictability, Control, Reliability, Resourcefulness, Hard work, Energy Perseverance, Planning.
Neuroticism	Awkwardness, Pessimism, Moodiness, Jealousy, Testiness, Fear, Nervousness, Anxiety, Tidiness, Wariness, Self-criticism, Lack of confidence, Insecurity, Instability, Oversensitivity.
Openness	Imagination, Insightfulness, Varied interests, Originality, Daringness, Preference for variety, Cleverness, Creativity, Curiosity, Perceptiveness, Intellect, Complexity/depth.

1-2 Myers- Briggs Personality Type Indicators:

The Myers-Briggs Personality Type Indicator is a self-assessment test that is being used to determine a person's personality type, strengths, and preferences. Isabel Myers and her mother Katherine Briggs developed the test in the 1940s based on their research into Carl Jung's personality type's hypothesis. The questionnaire contains four different scales:

Figure 2 MBTI 16 Personality type (Vital, 2019)

Favorite world: Do you prefer to concentrate on the outside world or on your own inner world? This is referred to as either Extraversion (E) or Introversion (I).

Information: Do you want to interpret and add meaning to the basic information you take in or do you prefer to focus on the basic information you take in? This is referred to as Sensing (S) or Intuition (I).

Decisions: Do you like to look at logic and consistency first when making decisions, or do you prefer to look at individuals and particular circumstances first? This is referred to as Thinking (T) or Feeling (F).

Structure: Do you like to make decisions or remain open to fresh information and possibilities while interacting with the outside world? This is referred to as judging (J) or perceiving (P) (Foundation, 2018).

Your Personality Type: When you decide on your preference in each category, you have your own personality type, which can be expressed as a code with four letters as in (Figure 2) & (Table 2).
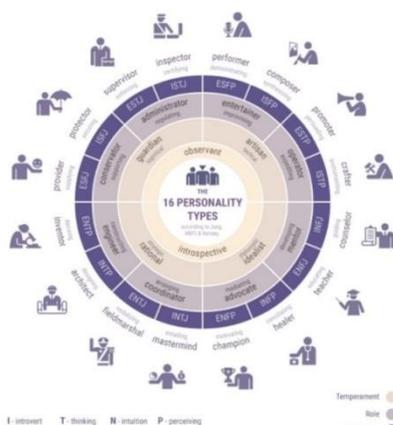
Table 2 MBTI description by authors (Foundation, 2018)

ESTJ Personality (Extraverted Sensing Thinking Judging type)	**The Supervisor (Executive)**
- Managing resources and projects. - Accomplishing tasks Efficiently.	- Following standards and procedures. - Finding practical solutions.
ISTJ Personality (Introverted Sensing Thinking Judging type)	**The Inspector (Logistician)**
- Maintaining order and efficiency. - Respecting tradition.	- Fulfilling commitments. - Analyzing problems logically and methodically.
ESFJ Personality (Extraverted Sensing Feeling Judging type)	**The Provider (Consul)**
- Building consensus. - Providing practical support.	- Maintaining traditions. - Creating structure and stability.
ISFJ Personality (Introverted Sensing Feeling Judging type)	**The Protector (Defender)**
- Considering the needs of others. - Fulfilling responsibilities.	- Observing traditions. - Maintaining strong relationships.
ESTP Personality (Extraverted Sensing Thinking Perceiving type)	**The Promoter (Entrepreneur)**
- Appreciating the moment. - Testing the limits of abilities.	- Engaging with the physical world. - Pursuing new experiences.
ISTP Personality (Introverted Sensing Thinking Perceiving type)	**The Crafter (Virtuoso)**
- Building practical skills. - Understanding the mechanics of things.	- Solving real-world problems. - Maintaining autonomy.
ESFP Personality (Extraverted Sensing Feeling Perceiving type)	**The Performer – (Entertainer)**
- Encouraging interaction. - Entertaining others.	- Observing facts about people. - Experiencing sensory pleasures.
ISFP Personality (Introverted Sensing Feeling Perceiving type)	**The Composer – (Adventurer)**
- Focusing on the needs of others. - Finding practical solutions.	- Providing warm and gentle support. - Adapting to change.
ENFJ Personality (Extraverted Intuitive Feeling Judging type)	**The Teacher (Protagonist)**
- Helping people reach their potential. - Working as a team.	- Making ideals into reality. - Accomplishing meaningful goals.
INFJ Personality (Introverted Intuitive Feeling Judging type)	**The Counselor (Advocate)**
- Inspiring positive change. - Understanding others.	- Fostering cooperation. - Finding meaning in work and relationships
ENFP Personality (Extraverted Intuitive Feeling Perceiving type)	**The Champion (Campaigner)**
- Expressing creativity. - Understanding people.	- Embracing new experience. - Providing acceptance and support.
INFP Personality (Introverted Intuitive Feeling Perceiving type)	**The Healer (Mediator)**
- Searching for meaning. - Understanding the needs of others.	- Exploring ideas and possibilities. - Encouraging personal development.
ENTJ Personality (Extraverted Intuitive Thinking Judging type)	**The Field marshal (Commander)**
- Taking charge. - Critiquing systems and processes.	- Making tough decisions. - Achieving success and status.
INTJ Personality (Introverted Intuitive Thinking Judging type)	**The Mastermind**
- Developing strategy. - Increasing knowledge and understanding.	- Understanding systems. - Organizing information and resources.
ENTP Personality (Extraverted Intuitive Thinking Perceiving type)	**The Inventor (Visionary)**
- Facing up to challenges. - Looking over issues and ideas.	- Figuring new possibilities. - Finding creative solutions.
INTP Personality (Introverted Intuitive Thinking Perceiving type)	**The Architect**
- Inquiring established ideas. - Analyzing complex problems.	- Catching innovative solutions.

1.3 Enneagram Personality type:

The Enneagram of Personality Types is a contemporary synthesis of numerous old wisdom systems, although the framework was gathered by Oscar Ichazo (Institute®, 1997). The Enneagram's organizational premise is simple: three personality types in each of three groupings, or Triads, result in nine personality types (Figure 3). The three Triads of the Enneagram specify whether your fundamental psychological orientation, which includes positive and negative traits, has to do with your emotions and self-image (if so, you are in the Feeling Triad), your thought processes and how you find security (if so, you are in the Thinking Triad), or your "gut" instincts and how you relate to the world (if so, you are in the body Triad) (Figure 4). (Don Richard Riso, 1996).
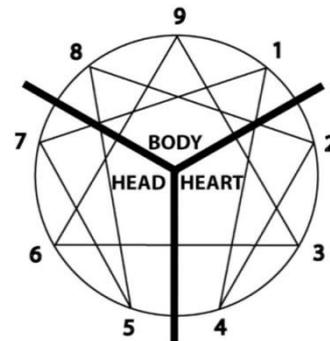
Figure 3 Enneagram diagram

Figure 4 Enneagram divisions

Table 3 Enneagram types (Don Richard Riso, 1999)& (Goldberg, 1999)

Enneagram type	Traits	Principle
One (The Perfectionist)	Visionary, principled, committed, stable, earnest, meticulous, disciplined, objective, scrupulous	You are good or okay if you do what is right.
Two (The Helper)	Generous helpers who bring out the best in others; assiduous, friendly, open hearted.	You are good or okay if you are loved by others and are close to them.
Three (The Achiever)	Eager, responsible, goal-oriented achievers; persistent, organized, enthusiastic	You are good or okay as long as you are successful and others think well of you.
Four (The Romantic)	Sensitive, aesthetic, refined, intrepid, audacious, get to the heart of the matter, profound	You are good or okay if you are true to yourself
Five (The Thinker)	Wise, perceptive, analytic, respectful, thoughtful, sensitive, kind, self-starters; objective, privately passionate about ideas	You are good or okay if you have mastered something.
Six (The Loyalist)	loyal, truthful, warm, dutiful, imaginative, funny, clever, committed, discreet, pragmatic, self-sacrificing, builder of coalitions, supportive	You are good or okay if you do what is expected of you.
Seven (The Visionary)	Innovative, optimistic, enthusiastic, funny, witty, inspirational, big-picture planners, charming, impulsive	You are good or okay if you get what you need.
Eight (The Leader)	Responsible, high- energy sovereign, a paladin	You are good or okay if you are strong and in control of your situation.
Nine (The Peacemaker)	Empathic, available, unaffected, steady, reliable, humble, warm, salt of the earth	You are good or okay as long as those around you are good or okay.

Personality type and design:

According to S. Gosling, there is a relation between the individual's personality traits and the physical environment they occupy (Gosling, 2002). Also, personality traits have an obvious impact on the design process in the conceptual phase (F. Anvari, 2015). So, we can say that personality traits are a clue that influences the interior design process, in addition to affects the user's preferences.

Discussion of related research.

Based on the literature review, this paper has managed to summarize 11 research studies on Personality type and interior design related to various design elements dated from 2002 to 2020 as in the table below. The review emphasis Way of personality assessment, Space activity, and interior design elements from previous findings with critical analysis and recommendation for the pilot survey (Table 3).

Table 4 11 studies analyses (By authors)

Author	Personality type Assessment	Space Activity		Assessment Elements						
		Residential	Administrative	Colors	Furniture Layout	Lighting	Form of Furniture	Personalization and Interior Design needs	Furniture Materials	Interior Design Style
1) (Wells M, 2002)	Big Five Model		*					*		
2) (Kim, 2005)	MBTI	*			*					
3) (Kim, 2005)	MBTI	*			*					
4) (Kim, 2009)	MBTI	*		*						
5) (Lee Dong-Joo, 2011)	MBTI	*								*
6) (Lee, 2013)	MBTI	*								*
7) (Rico, 2005)	Big Five Model			*						
8) (Jonghee Lee, 2016)	Enneagram	*			*		*		*	
9) (Poursafar & Rodrigues, 2017)	MBTI		*				*			
10) (Poursafar & Rodrigues, 2019)	MBTI		*	*		*				
11) (Jin-suk, 2020)	Enneagram			*						

2. Review of research studies methodology.

From the analysis, there are seven (7) assessment elements featured by previous research studies:

- Colors.
- Furniture Layout.
- Lighting.
- Form of Furniture.
- Personalization and Interior Design needs.
- Furniture Materials.
- Interior Design Style.

2.1 Colors.

Colors had been studied in 4 searches; The first one (Kim, 2009) assessed the personality type by MBTI and the findings were: There is a relation between color preference and personality type but MBTI didn't reflect the exact preference. The second one (Rico, 2005) assessed the personality type by Big five (Extroversion type), the results showed that there was a small relationship between Extroversion and color preference for color combination they preferred random color combination red-orange and violet. The third one (Poursafar & Rodrigues, 2019) assessed the personality by MBTI and collect all types in 4 groups Dominant Intuitive Types (DIT), Dominant Sensing Types (DST), Dominant Thinking Types (DTT) and Dominant Feeling Types (DFT). The results show positive relationship between color preference and personality type as follow (DFT- Feeling types prefer blue and red , DIT & DST - Intuitive & Sensing types prefer green and blue and DTT- Thinking types prefer blue and white). The fourth one (Jin-suk, 2020) assessed the personality type by Enneagram the results showed the relationship of the Enneagram personality type with the first preferred color of the three colors implies that personality is innate and essential;(Instinctive adult females liked red color first, followed by Feeling adult females who had no preference, and Thinking adult females who preferred purple first).

2.2 Furniture Layout.

Furniture layout had been studied in 3 searches; the first one (Kim, 2005) [1] assessed the personality type by MBTI and the results showed that there is a strong relationship as follow: (E) Extroverted inhabitants prefer arrangements that allow them to interact with visitors. (I) Residents who are introverted like a centripetal pattern around the bed.

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[1] A Study on Residential Furniture Layout Preference Characteristics with the Personality Types.

(S) Sensing residents want layouts that are practical and functional. (N) Personal and conceiving layouts are preferred by intuitive residents. (T) Residents who are thinking prefer the attribute of space. (F) Feeling a familiar conversation among the locals. (J) Judging residents like layouts that are systematic and comprehensive. (P) Residents are said to prefer layouts that are malleable and flexible. The second one (Kim, 2005) [2] assessed the personality type by MBTI and the results revealed that there is a significant relationship as follows: (E) Extroverted prefer the layout that allows the family to interact with the outside world. (I) Introverted prefer the layout that that focuses on quiet inner activities for family members and differentiates the family space by flooring type to maintain deep relations. (S) Sensing choose the layout that respects and values each family member's privacy and contribution. (N) Intuitive prefer the layout that emphasizes the importance of the function of each room rather than altering the room's location. (T) Thinking people value rational judgement and choose a layout that emphasizes luxury. (F) Feeling chose a layout that didn't block the entry and allowed the living room and entrance to be seen. (J) Judging place importance of changing the location of the room and improving its functionality. (P) Perceiving has a strong preference for the open layout, which allows more adaptability. The third one (Jonghee Lee, 2016) that assessed the personality type by Enneagram and applied the empirical study on studio 62m2 and provide three options for activity subdivision and the findings revealed a clear causal link between personality types and preference of spatial structure as follows: Type 5&6 prefer the separate bedroom layout and independent layout as when it comes to personal space, these types indicate that they are hesitant to share it with others also they believed that the main living room could be used as a work space by identifying it as a place to seek and accumulate knowledge and information. The independent structure was rather chosen in the case of Types 1 and 8. This appears to highlight personality type features that clearly differentiate between relaxing and working. Type 3 emphasize space efficiency and a desire to be seen by others, which is reflected in their personality type. Emotional type 2, 3, and 4 were the most common types to choose the main living space as the social domain as well as type 7&9. They expressed a desire to turn their main living space into a community space by reflecting their personality traits of being able to interact and communicate with people. Types 1 and 4 were the most common personality types when it came to choosing

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[1] A Study on Residential Evaluation & Remodeling preference characteristics with the Personality Type (II).

personal spaces for relaxation and leisure. People with this personality type expressed a great need to relax in their own environment, free of interruptions from others.

2.3 Lighting.
Lighting had been studied in one search (Poursafar & Rodrigues, 2019); that assessed the personality by MBTI and collect all types in 4 groups Dominant Intuitive Types (DIT), Dominant Sensing Types (DST), Dominant Thinking Types (DTT) and Dominant Feeling Types (DFT). All types prefer the same type of light, which is ambient lighting with personal control, as well as the same color of light, which is white light. This suggests that there is a negative link between personality type and lighting preference; lighting preference is determined by the space's functionality rather than personal preference.

2.4 Form of Furniture.
Furniture preference had been studied in two searches. The first one (Jonghee Lee, 2016); that assessed the personality type by Enneagram, the results show that it is necessary to choose the type of bed and sofa based on personality type when purchasing furniture, but it is preferable to prioritize personal design preferences over personality type when choosing the shape of storage furniture and the size of the bed and sofa. The second one (Poursafar & Rodrigues, 2017); that assessed personality by MBTI and the results showed that there is a relationship between personality type and furniture form preference in offices but didn't mention details about this preference.

2.5 Personalization and Interior Design needs.
Space personalizing had been studied (Wells M, 2002) that assessed personality by the Big Five model to show the relationship between personality and personalized office space, According to the analysis of different types of personalization, there are six major categories of workspace personalization: friends and/or coworkers, the arts, activities, loved ones, intellect, The results showed that extraverted employees display more items pertaining of friends and coworkers and intellect than do introverted employees. Employees who are open to experience are more likely to personalize with the arts and intellectual items than are employees closed to experience. Likewise, employees who are less agreeable and less conscientious display more items pertaining of activities such as sports and hobbies.

2.6 Furniture Materials.
Furniture Materials (Sofa materials preference) had been studied in (Jonghee Lee, 2016), that assessed personality types with the enneagram, and intercept sofa materials in (Wood – Fabric – Iron – Leather).

The results showed that Feeling (Heart) types (2,3,4) had a clear preference for materials that convey warm emotions, such as wood and fabric while Thinking (Head) types (5, 6, 7) differ as follow; 5&6 showed a clear preference to leather. While 7 preferred wood and fabric materials rather than leather materials. The Body (Gut) types (1,8) showed a clear preference for iron that was rarely selected for other personality types, while the 9-type preferred wood and fabric rather than iron and leather. This can be taken as an example of how, even among persons who have the same energy centre, their choices are not constant and differ depending on personality type.

2.7 Interior Design style.

Interior design style had been studied in 2 searches; The first one (Lee, 2013), that assessed personality by MBTI in 8 groups (Extrovert – Introvert – Sensing – Intuitive – Judging – Perceiving – Feeling – Thinking). And classify the interior design style into 5 styles modern, classic, natural, romantic, and casual style. The results showed that the survey participants overwhelmingly Preferred modern. The sensory type showed a strong preference for modern style, whereas the intuitive type preferred natural and casual style, according to the personality type preference index. a response to the considerable gap in responses to overall preference and non-preference styles was attributable to the lack of significant distinctions between personality types other than sensory-intuition preference markers. This demonstrates that the interior design requirements for different personality types cannot be determined only based on preference traits. The second one (Lee Dong-Joo, 2011), assessed personality By MBTI also in 8 groups and the results showed that the Introvert type preferred minimalism style more than those with the Extrovert type. Sensing type preferred the high-tech style, Whereas the Intuitive preferred the romantic style. Thinking type preferred a high-tech& modern style, whilst Feeling type preferred a romantic style. Judging type preferred classic style more than Perceiving type.

3. Conclusion and suggestion for further steps of current research.

First, in the study of the (Colors, Furniture Layout, Interior Design style, Personalization and Interior Design needs), it was found that there was a clear correlation with the user's personality type. As a result, while designing these elements, it must consider the personality type of the actual user.

Second, in the study of the (Form of Furniture, Furniture materials, Lighting), it was found that the preference of these elements was according to the function, the ease of use and the durability rather than the personality types.

Finally, Although the above study analyzed the preference characteristics for each personality type that satisfy the client's hidden needs, it is difficult to see that all complex factors of human psychology are reflected. This is also evidence that, in the matter of choice and preference, the user personality is that deep and there are complex operations of the mind that cannot be included in all personality typology theories. Through future research, it is necessary to analyze the local environmental factors and detailed design determinants and study various socio-scientific approaches and complex design studies.

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