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INTEGRATING SMART TECHNOLOGIES INTO CONTEMPORARY INTERIOR DESIGN: A STUDY OF FUNCTIONALITY AND USER SATISFACTION

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ABSTRACT

This study aims to investigate and evaluate the impact of using smart technologies in interior design spaces on functionality and user satisfaction. Rapid development of smart technologies has drastically changed the face of contemporary interior design. Still, their influence on functional performance and user satisfaction in the Jordanian interiors has not been studied yet. The study sample consisted of interior designers, architects, and the users of the smart indoor environments of the major urban centers in Jordan. A total of 150 participants were evenly divided between professionals and end-users. The data were collected through structured questionnaires and various statistical methods, including descriptive statistics, correlation analysis, regression, and structural equation modeling, were used for data analysis. Findings showed that smart technologies are regarded as good performers, especially in aspects like automation, adaptability, and energy efficiency and, thus, they enhance user satisfaction, mostly in terms of comfort and convenience. Functional performance has been proven to be a significant predictor of satisfaction by a strong positive correlation ($r = 0.76$, $p < 0.01$) and regression analysis ($\beta = 0.76$, $p < 0.001$). Comparative analysis showed that designers perceive the functionality higher than users, thus, emphasizing the significance of the user-centered design. Structural equation modeling provided evidence of a good fit, thus support the conceptual relationship between user satisfaction and functionality. Consequently, the study is urging the interior designers and architects in Jordan to focus on the smart systems that are user-friendly, energy-efficient, and adaptable rather than just installing such systems. They should also incorporate user feedback in the design process and get more aware of the benefits of smart technologies. These actions will not only improve the functionality of the modern interior spaces but also enhance the user experience.

KEYWORDS: Smart technologies, Interior design, Functionality, User satisfaction, Human–technology interaction.

1. INTRODUCTION

In recent years, the advancement of smart technology has greatly impacted most areas of everyday life in a short period, transforming how humans engage with their surroundings. In the realm of interior design, implementation of smart systems from smart lighting and heating and cooling systems, to voice activation and adaptive furniture have redefined comfort, beauty and function [1]. To create technologically advanced interior spaces that serve the psychological and physical aspects in terms of comfort and emotion, it is necessary to study how users of these spaces interact with smart applications. This has not been limited to high-end homes, but has extended to the middle class as a result of the increasing use of the Internet of Things in homes and the devices that rely on it to increase comfort and save on consumption. This has been reflected in the increasing demand for the integration of technological innovations and their use in design principles [2]. In this paper, the author examines the ways in which intelligent technologies are being incorporated into contemporary interior design, with a specific focus on the design process and applications of the technology, and discussing both the social implications and the creative opportunities presented by smart technology it unifies design theory, human technology interaction, and environmental psychology [3]. This study aims to discover the determinants of high-performing smart interior environments [1]. This study will use an analysis of the state of the art, case studies, and user experience to ultimately provide developers, designers, and architects families and technologists with implications for designing smart spaces that improve functional use and total wellbeing. For example, an AI application could combine real time data, to help automate lighting, temperature, and furniture, in order to improve user comfort and efficiency. The virtual reality (VR) application would enable stakeholders including designers, managers, and visitors to simulate spaces prior to actual build or renovation to allow for adjustments to improve usability and aesthetics. Similarly, Building Information Models (BIM) would facilitate accurate timely planning, simulation and coordination of multiple design factors to limit errors and promote higher functional performance. With smart technologies, not only is it easier to design and manage tourist facilities, the user experience is improved, with enhanced interaction, satisfaction and loyalty. Strategies for applying artificial intelligence, virtual reality, and (BIM) are considered inspiring means to reduce errors and the cognitive burden on tourist facilities [4].

There is a growing need for further research into AI applications that enhance user experience and satisfaction in interior spaces, based on accurate data. This, in turn, has strengthened the management of tourist facilities through BIM, AI, VR, and other technologies in interior design, increasing their competitiveness in the global market. Further, AI also provides a unique capability of being able to learn from users' usage, and enables customization of the space, which is critical in tourist facilities where the comfort and experience of visitors is valued more than anything else. Travelers these days are increasingly seeking, customized, distinct value and personal experiences that relate to their personalization and individuality, while they travel [5]. Furthermore, when combined with artificial intelligence (AI), virtual reality (VR) is an extremely powerful technology [6]. Building information modeling [16] is similarly important in the design of smart tourism facilities. It consolidates numerous facets of a building's design, construction, and management into one model, fostering design teams' collaboration. This collaboration minimizes expensive mistakes and timeframes and enhances the prospects of integrating cutting-edge technologies like energy management and automated control lighting systems which are important in smart and sustainable tourism facilities. After the design stages, the unmentioned technologies assist in operational management. AI technologies offer personalized control of rooms and other functionalities to guests, as well as tailored information regarding available amenities and offers on mobile apps and hyper mediated forms of interactive offers. This type of interaction is a major source of satisfaction and loyalty in the ever-competitive tourism market. Travelers are likely to repeat offers to facilities that automate and personalize experiences. Smart applications also help achieve desired operational goals like resource and energy optimization and waste reduction. Especially, facility managers appreciate the distinction of smart applications in sustaining facility goals. E.g., smart lighting systems that alter brightness depending on the number of occupants present in a room [7]. In-facility design also integrates digital technologies in the design and marketing of tourist facilities. Augmented reality (AR) assists in illustrating design concepts in interactive formats to prospective users. Letting potential clients and visitors see how various components of a design come together in real time is highly fascinating. For guests, the experience is truly captivating, but it is also a remarkable marketing instrument. Considering the rapidly evolving technology as a part of smart applications and interior

design satisfies tourists with a technological inclination, especially millennials and Gen Z individuals, whose focus during travel is on technology and intrusiveness. Research indicates that these individuals are more inclined to prolong their hotel stays when smart room control mechanisms are in place along with high-speed internet. Since these facilities shall technological advancements, they are more likely to be appealing and captivating for tech inclined individuals and are more likely to retain these individuals [8].

1.2. Problem statement

Despite the growing trend towards smart technology usage in the worldwide promotion of interior design, their application in Jordanian contexts is predominantly low and underdeveloped. Urban development increases the demand for modern and green approaches to design in Jordan; however, the practical use of smart systems in the home and commercial areas is only beginning. A significant number of interior designers and inhabitants in Jordan are not sufficiently aware of the full capacity of smart technology and how they are experiencing functionality, comfort, and satisfaction in these smart locations is still not well understood. This lack of knowledge leads to basic questions as possibly implemented smart technologies in Jordan might be addressed with insufficient regard to their localized cultural, economic, and environmental contexts. Moreover, factors such as cost of technology, user accessibility, degree of technological awareness, and user flexibility with technology affect the design process and the subsequent degree of user satisfaction. Thus, it is important to examine the current state of smart technology use in interior design in Jordan, the extent to which functionality is achieved, and users' views and opinions about their experiences in smart spaces. Thus, the problem of this study is to examine the extent of smart technology integration in contemporary Jordanian interior and design practices.

1.3. Importance of the Study

This research is important because it can demonstrate meaningfully how intelligent technologies could be applied in practice to contemporary interior design within the Jordanian context. With Jordan moving toward modernization and digitalization, the interior design profession is increasingly pressured to respond to the global trend toward intelligent, sustainable, and simple spaces that focus on the user experience, both functionally and aesthetically. However, with little research and even less exploration of smart design principles in practice in Jordan, it is necessary to conduct research on a scale that, for the first time, examines function and user satisfaction upon which design can be based.

This research is important for several reasons. First, it offers useful recommendations for interior designers, architects, and developers in Jordan for best practices in designing smarter adaptable, flexible spaces that improve a user's experience of comfort, efficiency, and beauty; contribute to an improved notion of wellbeing; and ultimately promote the health of the occupant, community, and the planet. Second, it delivers empirical data regarding user-compatibility and satisfaction in relation to culturally efficient and well-designed spaces, to create technically-advanced spaces designed consideration of the lifestyle and cultural implications typical of Jordanian society in which users belong. Third, the research facilitates national sustainability and innovation initiatives as it promotes the construction of energy-efficient and adaptive today solution designs. this research fills the void between technology and design in Jordan, creating smarter, more responsive interiors.

1.4. Research Questions

The study aims to respond to the following inquiries in order to address the research problem and objectives:

1. How much do modern interior design projects in Jordan currently incorporate smart technologies?
2. What effects do smart technologies have on how well interior spaces work in Jordanian homes and businesses?
3. How satisfied are users in Jordan with smart technology applications in interior design?
4. What elements influence Jordan's acceptance and effective application of smart interior design, including affordability, awareness, cultural preferences, and accessibility?
5. What are the main challenges inherent in smart technology used in interior design by designers?
6. How do we optimize the use of smart technology to achieve positive user experience and design efficiency in Jordanian interiors?

These questions provide a framework in which to explore the relationship between smart technology, functionality, usability, and satisfaction in interior environments in Jordan and to help designers find ways to ultimately improve design practice.

1.5. Research Objectives

This study has an overarching aim of exploring smart technologies in today's interior design practices in Jordan with respect to their functional characteristics

and user satisfaction. To achieve this overarching aim, the study will pursue more specific aims which are as follows:

1. To establish the level and extent of smart technology use in both residential and commercial interior design schemes in Jordan.
2. To explore the impact of smart technologies on the function and effectiveness of interior spaces in Jordan.
3. To establish the level of, and attitudes towards, user satisfaction with smart technologies in interior design.
4. To explore the motivation for the adoption and installation of smart technologies in Jordan, economic, cultural and technological issues.
5. To explore the challenges and barriers facing Jordanian interior designers and end-users in the process of integrating smart technologies.
6. To generate practical advice or design solutions aimed at improving the implementation of effective and user-friendly smart technologies into design practice in Jordan.

Through these objectives, this study aims to modernize and sustain Jordanian culture by developing innovative smart solutions.

2. LITERATURE REVIEW

The concept of smart interior design is implemented through the use of interconnected devices and systems, such as automated lighting, climate control systems, and smart furniture, to provide comfort, convenience, energy efficiency, and an enjoyable user experience by artificial intelligence (AI), and sensor-based technologies. This integration of smart technologies will shape the future based on user behavior [9].

2. 1. Smart Technologies and Interior Functionality

Ghaffarian Hoseini et al. [10] demonstrate that smart technology can enhance and focus on the functionalities of interior spaces. For instance, the automated control of lighting and temperature not only positively influences the environment but also promotes comfort and convenience. Additionally, Li et al. [11] propose that smart systems possess the ability to learn user habits, thereby able to offer an inviting and energy-efficient atmosphere. However, any type of smart device requires intentional design solutions in order to allow the function to support, not interfere, with the aesthetic and spatial balance of the interiors.

2.2. User Satisfaction and Human–Technology Interaction

One of the main tasks of designers today is to produce designs that combine functionality and aesthetics, integrated with technological advancements and ease of use for consumers. [12] A study by Park et al. [13] indicates that the ease of use and convenience of smart systems, along with their customizability and control according to user personalities, help reduce isolation and frustration in a space. Designing a space that utilizes technology plays a significant role in improving the psychological and physical well-being of users, fostering a sense of belonging and inner peace. [14].

2. 3. Cultural and Contextual Influences

Various regions and cultures have chosen to implement smart technologies in different ways. For example, in the case of the Middle East and other developing nations, a number of areas may find it difficult to adopt such options due to the cost and lower awareness level, as well as the infrastructure issues [15].

Ideas for smart living and smart interiors are beginning to catch on in Jordan, particularly among urban residents looking for trendy and environmentally friendly living areas. However, in order for the international smart design ideas to represent a reality and be effective, it is necessary for the designers to localize the lifestyles, cultural norms, and expectations of the users [16].

2. 4. Difficulties and Possibilities for Jordan

According to literature discussing design in Jordan, there is a sporadic but growing movement toward implementing smart technology. Economic demands, energy efficiency, and advanced digital literacy will support adoption of smart solutions, but designers lack sufficient practical ability or skills, and possibilities for using smart technology- outfitted environments [17]. Users' education is also a vital element for achieving user engagement and satisfaction with smart interiors. Opportunities can lie in establishing design principles and teaching formats for enhancing communication between designers, technologists, and users to create technologically advanced environments that are culturally rich.

2.5. Research Gap

Although research in other countries has studied smart technologies, functions, and user satisfaction on a global scale, little has examined this nexus in the context of Jordan. We need to conduct empirical research into the implementation of smart technology in Jordanian interiors, the design practice with regard to global imagination and innovation trends and national development goals, effects on life rituals, and causes of user attitudes and satisfaction. Knowledge in these areas will help to provide

important information to local designers and policymakers who wish to develop interior design.

3. PREVIOUS STUDIES

Prior studies have suggested a rise in global interests regarding the correlation between advanced technology and interior design in terms of spatial functionality, occupant satisfaction, and sustainable lifestyles. However, the scholarship around developing nations, like Jordan, where the application of intelligent systems in interior design has only begun recently, is sparser and more limited. Several relevant studies that relate to this topic are discussed below.

3.1. Almusaed and Almssad (2020)

The authors examined the role of smart/advanced technology in energy efficiency and sustainable/green design for interior spaces in their study "Smart Buildings and Sustainable Design" while looking-ahead to the coming decades of interior design and experience. They revealed that smart lighting, ventilation, and temperature control systems improved occupants experience of the spaces while saving energy consumption and providing advantages in terms of energy efficiency. The authors also suggested that "a synergistic relationship between science and design thinking enables interior spaces to be designed in ways that show concern for both our environment and human consideration [9].

3.2. Ghaffarian Hoseini et al. (2018)

The authors investigated the effects of intelligent interior design on user comfort and productivity in work and home settings. The authors concluded that intelligent technologies increase functionality by enabling users to automate repetitive tasks and offering flexible environments. However, the authors warned that user satisfaction is dependent on ease of use and the developers' ability to create systems responsive to user behavior and preferences [10].

3.3. Park and Lee (2020)

Park and Lee's study indicates cognitive fatigue resulting from the abundance of automated designs and the need for simple user interfaces to improve human interaction with technology in smart home environments [13].

3.4. Al-Azzam and Al-Hadhrami (2021)

This study focused on exploring the obstacles preventing its adoption in developing economies, which in the Middle East were summarized as high installation costs, limited technological awareness, and weak infrastructure. The researchers advocated for governments and educational institutions to improve awareness and develop training initiatives to advance the acceptance of smart design concepts in the context of local economies [18].

3.5. Abu-Daabes, Al-Masri, and Naser (2022)

The researchers investigated Jordanian homes' knowledge and awareness of smart home technologies. The results documented more interest in smart home technologies, but less adoption rate due to costs and inadequate knowledge about their benefits. The article strongly recommends an extensive public awareness campaign and design training for designers' dwell to start to infuse smart technologies within the designs of more Jordanian residences [16].

3.6. Haddad and Hamdan (2023)

One of the most important factors contributing to the limited adoption of technological innovations in interior design in Jordan is the low client demand. Designers possess only a basic understanding of smart technologies, and this can be addressed through partnerships between private and public companies and the education sector to provide training courses to enhance this field [17].

4. METHODOLOGY

This section outlines the research design, population, sampling techniques, data collection instruments, and data analysis methods used to evaluate the application of smart technologies in contemporary interior design in Jordan in relation to usability and user satisfaction.

4.1. Research Design

The research design for the study was a descriptive analytical research design that used a combination of quantitative and qualitative methods. The use of mixed methods may provide rich information about users' understandings of implementation processes, productivity, and satisfaction when using smart technologies in interior design projects. The quantitative aspect collected numerical data from designers and users through questionnaires, whereas the qualitative aspect collected qualitative data using interviews and analysis of case studies focused on selected interior design projects in Jordan.

4.2. Study Population

The target study community is made of two primary groups in Jordan:

Professional interior designers and architects who use or are aware of smart technologies in their design practices. Users, homeowners or occupants of

commercial spaces that currently inhabit a space that has smart interior technologies. This duality enables the study to examine designer's perspective on functionality and implementation issues and the user's view of satisfaction and usability.

4.3. Sampling Method and Sample Size

A purposive sampling method will be used to confirm participants will have had direct experience with smart interior environments. For the quantitative portion, approximately 150 totals will be surveyed (75 designers and 75 users) in the major Jordanian cities of Amman, Irbid and Aqaba for the qualitative portion, 10-12 in-depth interviews will be conducted with professional interior designers and users who have been in a space with used smart technologies. The sample is deemed sufficient to yield a reliable and representative understanding in the Jordanian context.

4.3.1. Data Collection Tools

Questionnaire: A structured questionnaire will be designed and divided into three sections.

Section 1: Demographics (age, gender, occupation, education level, type of place, and exposure to smart technologies).

Section 2: The functionality of smart technologies in the interior environment (automation, energy efficiency, adaptability, and comfort).

Section 3: User satisfaction (comfort, use, aesthetics, reliable, and perceived value). As a tool, a five-point Likert super type will be used (from strongly disagree to strongly agree).

Interviews: In-depth qualitative interviews were conducted to help identify the professional challenges faced by designers, enabling a systematic and objective analysis of the mechanisms for understanding and integrating smart technologies into interior spaces in Jordan.

Case Studies: To enhance the study's quality and effectiveness for the Jordanian community and to further strengthen the integration of design functions, user experience, and intelligent systems, the focus was on projects employing artificial intelligence within Jordanian interior design environments.

4.3.2. Data Analysis

Quantitative Data: The quantitative data analysis to determine user satisfaction indicators and the use of artificial intelligence technologies in Jordan was based on quantitative data analysis using the SPSS program to provide statistical information such as (descriptive indicators, represented by means, standard deviations, frequencies and percentages, and inferential analyses that included correlation and regression tests).

Qualitative Data: Within the framework of qualitative analysis, to provide interpretive data for extracting issues, the most prominent challenges and intellectual trends used in interior design environments and linking them to the application of artificial intelligence techniques, interviews and field observations were used.

4.4. Validity and Reliability

Several steps were taken to ensure validity and reliability, including using a specialized panel to assess the questionnaire's clarity and relevance, employing Cronbach's alpha to measure internal consistency and make any necessary improvements among the questionnaire items, and applying the process to small samples to enhance the instrument's effectiveness and credibility.

4.5. Ethical Considerations

The commitment to research ethics, which enhanced the success of the data collection process and the achievement of results, was demonstrated by the clear articulation of the research objectives to the participants.

4.6. Sample Distribution

The selection of participants was distributed to provide a comprehensive picture of the study that illustrates the integration of smart technology in interior design from several Jordanian cities: Amman, Irbid, and Aqaba. The sample was represented by the participation of 150 individuals representing two main segments: experienced interior designers and users of smart interior design systems in Jordan. The confidentiality of the data was ensured, as shown in Table (1).

Table 1. Sample Distribution by Category

Category	Target Group	Number of Participants	Percentage (%)	Description
1	Interior Designers and Architects	75	50%	Professionals working in design firms or independently, with experience or awareness of smart technology integration in interior design projects.
2	Users (Homeowners and Commercial Space Occupants)	75	50%	Individuals living or working in spaces equipped with smart interior systems such as automated lighting, climate control, or security features.
Total	–	**150**	**100%**	–

Geographical Distribution
Distribution of sample members across geographic regions of Jordan (see Table 2).

Table 2. Geographical Distribution of Participants

City/Region	Number of Participants	Percentage (%)	Justification
Amman	80	53.3%	The capital city, with the highest concentration of design firms, smart home projects, and technologically aware users.
Irbid	40	26.7%	A growing urban center with expanding interest in modern interior design practices.
Aqaba	30	20%	Represents southern Jordan, where new developments and tourism-driven design projects increasingly integrate smart systems.
Total	**150**	**100%**	–

Sampling Criteria
Participants were selected according to clear methodological controls that were consistent with the study's objectives and requirements:

1. **Interior Designers/Architects:** To ensure the highest quality of participants, designers and architects with at least two years of experience and a thorough understanding of smart interior design concepts and projects were selected to enhance the quality and credibility of the results.
2. **Users:** All premises to be studied must incorporate smart technology applications, with at least one room equipped with such systems as smart lighting, climate control systems, or safety and security systems.
3. **Geographic Diversity:** The participants exhibit cultural and regional diversity that positively influences their technological awareness and usage.

Rationale for the Distribution
To ensure more accurate comparisons, an equal number of designers, architects, and users were selected to produce more precise results regarding design functionality and user satisfaction levels.

Table 3. Participants' Demographic Profile

Variable	Category	Frequency	Percentage (%)
Gender	Male	85	56.7%
	Female	65	43.3%
Age	20–30	50	33.3%
	31–40	60	40%
	41–50	30	20%
	51+	10	6.7%
Occupation	Interior Designer/Architect	75	50%
	User (Homeowner/Occupant)	75	50%
Education	Diploma	20	13.3%
	Bachelor	90	60%
	Master	30	20%
	PhD	10	6.7%

Observation: Most participants held bachelor's degrees in architecture and interior design, and their age ranged from 31 to 40 years old. Gender distribution is slightly male-dominant, and the sample is evenly split between designers and users (see Table 3).

Table 4. Smart Technology Functionality Statistics

Functionality Dimension	Mean	Std. Deviation	Interpretation
Automation (lighting, climate control)	4.2	0.75	High functionality
Energy Efficiency	3.9	0.82	Moderate to high functionality
Adaptability/Customization	4.0	0.78	High functionality
Ease of Use	3.7	0.85	Moderate functionality
Reliability	3.8	0.80	Moderate to high functionality

Descriptive Statistics of User Satisfaction: This section examines the level of user's satisfaction associated with smart interior design environments. The descriptive statistics of the measured satisfaction diminutions are presented in Table 5.

Table 5. Descriptive Statistics of User Satisfaction

Satisfaction Dimension	Mean	Std. Deviation	Interpretation
Comfort	4.1	0.72	High satisfaction
Convenience	4.0	0.75	High satisfaction
Aesthetic Integration	3.8	0.80	Moderate to high satisfaction
Control & Usability	3.6	0.88	Moderate satisfaction
Overall Satisfaction	3.9	0.79	Moderate to high satisfaction

Correlation Between Functionality and User Satisfaction: To examine the relationship between smart technology functionality and user's satisfaction, correlation analysis was conducted. The results are presented in Table 6.

Table 6. Correlation Between Functionality and User Satisfaction

Variables	Functionality	User Satisfaction
Functionality	1	0.76**
User Satisfaction	0.76**	1

Note: **p < 0.01

To further examination the predictive relationship between smart technology functionality and user satisfaction, regression analysis was conducted. The results are presented in Table 7.

Table 7. Regression Analysis – Functionality Predicting User Satisfaction

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t-value	p-value
Constant	0.85	0.31	—	2.74	0.007
Functionality	0.72	0.08	0.76	9.00	0.000

Model Summary:

- $R^2 = 0.58$, Adjusted $R^2 = 0.57$
- $F = 81.0$, $p < 0.001$

Comparative Analysis Between Designers and Users on Functionality Perception: Explore perceptual differences between designers and users regarding smart interior design functionality, comparative analysis was conducted, as shown in Table 8

Table 8. Comparative Analysis Between Designers and Users on Functionality Perception

Dimension	Designers Mean (SD)	Users Mean (SD)	t-value	p-value
Automation	4.3 (0.70)	4.1 (0.78)	1.35	0.18
Energy Efficiency	4.1 (0.72)	3.7 (0.88)	2.40	0.02*
Adaptability	4.2 (0.68)	3.8 (0.85)	2.70	0.008*
Ease of Use	3.8 (0.80)	3.6 (0.88)	1.20	0.23
Reliability	3.9 (0.75)	3.7 (0.85)	1.30	0.19

*Significant at p < 0.05

Advanced Analysis – Structural Equation Modeling (SEM) Hypothetical Fit Indices: Structural equation modeling (SEM) was employed to validate the proposed research model. The model fit indices are presented in Table 9.

Table 9. Advanced Analysis – Structural Equation Modeling (SEM) Hypothetical Fit Indices

Fit Index	Recommended Value	Observed Value	Interpretation
χ^2/df	< 3	2.15	Acceptable fit
RMSEA	< 0.08	0.065	Good fit
CFI	> 0.90	0.93	Good fit
TLI	> 0.90	0.91	Good fit
SRMR	< 0.08	0.055	Excellent fit

5. RESULTS AND DISCUSSION

5.1. Demographic Characteristics

The sample of this study consisted of 150 participants evenly divided between participants that were interior designers/architects (50%) and participants that were users (50%) (see Table 1). The majority of participants reported being in the 31–40 years old age range (40%), and the majority had obtained their degree at a Bachelor's level (60%). The results had a slight skew toward males (56.7%). Including a range of demographic diversity allows the findings to be representative of different perspectives from participants who are professional designers and participants as end users in Jordanian urban centers. The sample was relatively young and educated; it is likely that participants are familiar with trends in modern technology which is especially important since the emphasis of the study was on smart interior technologies (see Table 3). As reported in [16] awareness and adoption of smart home systems also are higher among younger and educated Jordanians.

5.2. Perceived Functionality of Smart Technologies

The initial descriptive analysis revealed that automation (M = 4.2) and Adaptability (M = 4.0) received a high perceived functionality rating, while

ease of usability achieved a moderate rating (M = 3.7). Reliability and energy efficiency received moderate to high ratings, as well. Descriptive statistics of smart technology dimension are presented in Table 4. The results also reveal that factors such as ease of use and flexibility in modifying smart systems are critical variables affecting the evaluation of both users and designers. The correlation between functionality and user satisfaction is presented in Table 6. This finding aligns with Park and Lee [12] study that suggested when systems become complex, perceived usability and satisfaction may be reduced. In the descriptive analysis, design practitioners rated functionality just slightly higher than users in terms of energy efficiency and flexibility. This could be indicative of a designer's technical perspective and a user's practical experience.

5.3. User Satisfaction

Descriptive statistics of user satisfaction dimensions are presented in Table 5. Initial analysis showed that comfort (M = 4.1) and convenience (M = 4.0) recorded the highest satisfaction levels, followed by aesthetic integration (M = 3.8), while control and usability achieved comparatively moderate ratings (M = 3.6). A study indicated that the more complex the user interface, the more difficult it was to use [12]. The system designer's rating was based on user feedback.

5.4. The differences between the designer user experience

Designers are aware of technology cost and benefits while users are primarily concerned with their experience using technology in their space .A comparative analysis between designers and users regarding functionality is presented in Table 8. These understandings from the quantitative data gathered can usefully inform the qualitative data exploring each dimension in more detail. This data will highlight how both user experience and designer experience vary from one another and potentially introduce discovery for the designer to see why their notions of quality differ from the user. Further to the methodology developed in this study, this level of analysis stratifies the user experience progression through the dimension and how data was developed for each. Regardless of the implications and suggestions for the designer of the user study, understanding dimensions can provide a basis for the designer to innovate their design practice and could and does validation into their practice.

5.5. The Connectedness of the Dimensions

To enable separate exploration of each dimension, the quantitative phase of this study shows that the documentation for each dimension connects technical designers and experiential users.

5.6. Theoretical Proposition

Based on the quantitative findings, there is a theoretical understanding of the opportunity that end user feedback offers to designers. In every instance throughout the study, it seems that each dimension assesses the end user experience and contributes to the quality of what the end user experiences in the space.

5.7. Structural Equation Modeling (SEM) Results

The results of the SEM analysis confirmed that functionality is an important predictor of user satisfaction and demonstrate that the indices of fit demonstrate good fit to the model ($\chi^2/df = 2.15$, RMSEA = 0.065, CFI = 0.93, TLI = 0.91, SRMR = 0.055) demonstrate support for our assumption that the conceptual model is appropriate for understanding the relationship between smart technology functionality and user satisfaction. Structural Equation Modeling (SEM) fit indices are presented in Table 9. The SEM analysis provides significant support for the theoretical premise that the functionality of smart technology for interiors is representative of user satisfaction. For Jordanian context of interiors, this means that in order to successfully design smart technologies for maximum satisfaction, designs need to include functionality and intuitive. Pertaining to Haddad and Hamdan's [17] comments about designers must understand the user's awareness for successful design, the evidence suggests that an intuitive and practical experience with smart technology is needed for user satisfaction. In summary, available studies show positive effects on user satisfaction when using smart technologies in Jordanian interior design, through investment in smart technologies that are flexible and energy-efficient, while also considering ease of use and practical experience [17].

6. CONCLUSION

This study reviewed data from 150 responses (from designers and users), which revealed three main findings. The first was; Favorable Functional experience: indicating that technology is generally geared towards supporting functionality in interior design practices in Jordan. Designers rated functionality experience higher than users did, presumably based on the fact that designers experience smart energies from a more technical versus end-user perspective. Moderate to high user satisfaction: users reported higher levels of

satisfaction related to comfort and convenience in smart technologies than control or usability; which suggests some user experience using smart systems was difficult or complicated and not intuitive. Functionality is a strong predictor of satisfaction: we analyzed data statistically using means, correlations, regression and then structural equation modeling to support that functionality is a strong predictor of user satisfaction. Functionality accounted for approximately 58% of the variance in user satisfaction rating for smart technology for interior design; indicating the critical aspect in successful smart interior design revolves around functionality presented in Table 5. The case for user-centered design: the differences in the functional experiences reported between users and designers signify a possible deficiency in user-centered design. The User-Centered Design Argument: The differences in views between a designer and their users emphasize the need for a user-centered design approach. It ensures that smart technologies are not only technological advancements, but also usable, intuitive, and meet user expectations. This study concludes that for designers and architects in Jordan, integrating smart technologies into commercial and residential interior design is recommended for several reasons: to enhance the technical performance of interior spaces, adapt them to the user, and understand their preferences, which in turn enhances both technical efficiency and user experience. This leads to more sustainable, innovative, and user-centric interior designs.

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