Understanding Design Approach of the Workplace Through Value Creation and Satisfaction

Frankie Lee*, June Maul, Crystal McCabe, James Dudleston, and Muthu Kuchanur

Abstract—The study explored how a newly designed facility met the needs of the workers. Professional office workers of a recently renovated office space comprised the sample for this study. A questionnaire and an interview were the methods of data collection. Additional data sources included over 200 photographs illustrating various new building design elements. Data analysis included descriptive findings as well as thematic analysis ultimately describing the phenomenon. Participants described building-design-driven elements that impacted satisfaction. Factors such as behavioral, psychological, and physiological well-being; personal values; as well as organizational values, culture, and image also influenced satisfaction. The findings suggested that the interior design of an office space drives satisfaction based on several perspectives. We found that the key drivers of satisfaction, in addition to personal needs being met, were impacted by behavioral, psychological, and physiological well-being, personal values, as well as organizational culture and values. Constructs of the social theory and Personality Adjusted Model (PAM) were also implicated suggesting the previous school of thought and understanding of perceived satisfaction related to the office space and the workplace have changed. Based on the findings, we suggested a framework to explore new space planning and design approaches based on several perspectives.

Index Terms—Research-based facility design, workplace, job satisfaction, organizational behavior

I. INTRODUCTION

The interior design of an office space varies from suite to suite and building to building. An important part of an effective design entails space planning that addresses functional and aesthetic needs. In general, a well-planned space plan delivers a layout that provides functional workspaces that support various workflows [1]. Workspaces with research-based design take a step further aiming to influence the behaviors of workers with targeted use cases such as to achieve positive psychological effects related to satisfaction [2, 3]. Additionally, an effective design of an office space influences the well-being, health and safety, and productivity of the occupants [4]. However, the business environment today demands innovative approaches to designing office buildings appropriate for the future with a joint focus on value creation and stakeholders' satisfaction. Professional office workers of a recently renovated office

space comprised the sample for this study. The study explored how a newly designed facility met the needs of the workers by understanding how workers describe the interior design and the design dimensions of a remodeled office space as it relates to workplace satisfaction.

II. LITERATURE REVIEW

A. Background

Interior design comes in many forms and aesthetics. The foundation of interior design is to create a cohesive solution to address problems and improve the experience of the occupants of the space through well-thought-out space planning [5]. From the perspective of the occupants, the interpretation and understanding of the interrelationship of the environmental elements (Figure 1), designs, and physical characteristics formed a psychological realization of the perceived satisfaction, positive feeling, or unsatisfaction negative feeling, of the individual [6]. Through the respective composite image of the office space and interpretation, the participants describe personal connections to the physical space and design. That personal connection enabled the participants to describe their perceived satisfaction with the workplace. To further understand the relationship between the perceived satisfaction of the occupants and the physical space, such as an interior design of a workplace and workspaces, an extensive literature review was conducted into the background of the topic.
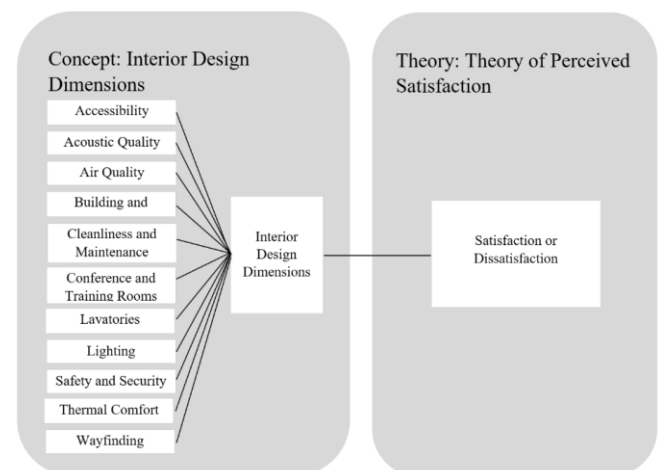

Fig. 1. Conceptual definition of interior design dimensions and the theory of perceived satisfaction.

Multiple studies were reviewed to gain an understanding of the problem space and the phenomenon. Previous studies found perceived positive and negative effects of occupants with workspaces, indoor environmental elements and quality of a space, and the aesthetics as well as the functional design

of the workspaces such as flexible workspaces and open-office concepts respectively [2, 7]. In further review of the literature, the topics for environmental psychology studies focus on the effects of office building designs, indoor environmental elements and quality, and the influences that the occupants may be experiencing by working in the office space [4, 5, 7]. Other studies have suggested correlations between indoor environmental elements and the occupants' general psychological stage and behavioral influences [7]. Additionally, workplace environmental conditions affect satisfaction at the workplace and well-being, which may negatively affect work attendance [7–9]. The result of the empirical articles review suggested a strong relationship between the design dimensions of office buildings, users and environment relationship, and the reaction outcomes of the occupants such as satisfaction with a certain design. The phenomenon was that the designs of office buildings affect workers either positively or negatively. In a more recent development, a pandemic extends the discussions of office space design, design effectiveness, and approaches.

The levels of the effectiveness of office spaces became the focus as a result of the recent pandemic. The expectations differ for office workspaces before the pandemic and post-pandemic as it relates to workplace designs such as with varying degrees of expectation working in shared spaces, open-office concepts, and social distancing. The overarching question now is how and if there will be a new design approach to the workplace in a post-pandemic world. Our study explored the multi-facets of office space operations and employees' evaluation viewed as part of the design dimensions, and the office space sustainable operations to understand this critical issue. Our study explored how a newly designed facility met the needs of the workers such as value creation and satisfaction.

The research questions were designed to gain an in-depth understanding of the phenomenon specifically, how workers described the interior design of a remodeled office space as it relates to workplace satisfaction in central Arizona, USA. The following research questions guided this qualitative descriptive study:

RQ1: How do workers describe the interior design and design dimensions after relocating to a remodeled office space with a different interior design?

RQ2: How do workers describe workplace satisfaction after relocating to a remodeled office space with different interior design and design dimensions?

The focus of research question one was based on the occupants' interpretation of the physical characteristics of the office space such as the interior design and the design dimensions. Research question one sought to understand how the workers relate to the different interior design, and design dimensions after relocating to a remodeled office. The focus of research question two was based on the respective understanding and connection of the physical space to personal satisfaction. Research question two sought to understand how workers describe workplace satisfaction as it relates to interior design. The instruments of the study consisted of a questionnaire and an interview. The questionnaire and the interview questions were designed to probe workers' reactions and detailed accounts of their experiences to answer the research questions.

III. METHOD

A. Design

This is a qualitative study. There were three data sources: 1) a questionnaire, 2) an interview, and 3) photographs of the physical office spaces and workspaces. The data sources were based on the participants' first-hand experiences related to the phenomenon. In addition to an analysis for descriptive findings, a six-phase thematic analysis was used to derive the themes that ultimately answer the research questions and describe the phenomenon [10]. The study was approved by an Institutional Review Board (IRB) at the university, a place of employment of the researchers.

B. Questionnaire

A questionnaire, containing 19 questions, collected descriptive findings based on satisfaction, dissatisfaction, or no opinion of the design dimensions. The questionnaire inquired about the reaction of the workers to each specific design dimension. One of the questions in the questionnaire was an open-ended question that allowed the participant to expound on the importance of the design dimension or dimensions and the reason that was important to the individual. A group of 28 office workers in a renovated office space completed a questionnaire.

C. Interview

The interview questions asked for additional detailed descriptions from the workers based on their perceptions, experiences, and reactions. The interview with open-ended questions allowed participants to expound on the details which provided a better understanding of the spatial elements of the interior space consisting of the design and the environmental dimensions. Participants in the questionnaire were invited to partake in the interview. Fourteen participants partook in an interview.

IV. RESULTS

A. Descriptive Findings

It was important to understand how the participants rated the dimension individually to understand the overall satisfaction. As a result, the descriptive findings showed the overall satisfaction rate based on design dimensions was 78.3% supported by 18 of the 23 design dimensions receiving over 85% satisfaction. Acoustic quality (conference room) and cleanliness and maintenance ranked high at over 96% satisfaction. The second highest, with over 89% satisfaction, was the building and grounds, the design of the conference room, lighting, and the lavatories (gender-designated). Looking at the totality of the responses, the findings suggested positive overall workplace satisfaction based on the design dimensions of the renovated office space which was supported by the qualitative data collected in the interviews. Descriptive statistics of the interior design dimensions of satisfaction indicators are shown in Table I.

The occurrences based on the code and each instrument identified the initial pattern critical to understanding how participants perceived satisfaction and later in establishing the themes (Table II). The majority of occurrences that appeared for IISD3 (overall interior design impression) were

derived from both instruments. The second-highest number of occurrences was IISD2 (open office concept). The third-highest number of occurrences appeared for IISD1 (availability of and accessibility to amenities), BI2 (collaborate and communicate with others), and PSI8 (loss of privacy or feeling exposed). The remaining occurrences appeared mostly in the interview showing PSI1 (psychological impacts for comfortable, pleasant, and warming). We established the themes based on these codes to answer each research question which ultimately describes the phenomenon. A description of the codes by occurrences by data source is shown in Table II.

TABLE I: INTERIOR DESIGN DIMENSIONS: SATISFACTION INDICATORS

Design Dimension	Satisfaction by %
Accessibility	85.7
Acoustic quality (assigned workspace)	64.3
Acoustic quality (conference room)	96.4
Acoustic quality (training room)	75
Air quality (assigned workspace)	85.7
Air quality (overall workspace)	85.7
Building and grounds	89.3
Cleanliness and maintenance	96.4
Design of conference room	89.3
Design of training room	85.7
Lighting (assigned workspace)	89.3
Lighting (overall space)	92.9
Lavatories (gender-dedicated)	89.3
Lavatories (gender-less)	92.8
Office furnishing (assigned workspace)	85.7
Office furnishing (overall workspace)	85.7
Office Layout	85.7
Overall interior design	85.7
Safety and security (Company's suites)	85.7
Safety and security (Overall building)	82.1
Thermal comfort (assigned workspace)	71.4
Thermal comfort (overall workspace)	75
Wayfinding	75

TABLE II: DESCRIPTIVE OF CODES

Perceived Satisfaction Theory Components	Code Description	# of Questionnaire Occurrences	# of Interview Occurrences
Impression and intellectual understanding of the space and design dimensions	IISD1-availability of and accessibility to amenities	3	48
	IISD2-open office concept	4	63
	IISD3-overall interior design impression	7	99
	IISD4-feeling and experience with workspace	0	38
Behavioral impacts	BI1-motivated to come to work	0	1
	BI2-collaborate, communicate with others	3	7
	BI3-adapt or change behaviors	1	8
Psychological impacts	PSI1-comfortable, pleasant, warming	0	45
	PSI2-inviting, welcoming	0	9
	PSI3-energetic, light, and bright, positive vibe	0	11
	PSI4-happy, cheerful, joyful	0	15
	PSI5-feeling secured, safe, protected	0	14
	PSI6-focus, concentrate	1	0
	PSI7-distracted, unable to pay attention	0	4
	PSI8-loss of privacy, feeling exposed	3	5
	PSI9-relaxed, not stress, peaceful, calming	0	25
	PSI10-social, engaging, gathering	0	5
Physiological impacts	PHI1-well-being, health, symptomatic	0	4
Organizational impacts	ORG1-culture	1	2
	ORG2-values	0	1
	ORG3-image	0	3
Others	OTR1-COVID-19 impacts, measures, protocols	2	37
	OTR2- design dimension additions or changes	0	42

B. Themes

Multiple themes emerged as a result of the data analysis that answered the research questions. We analyzed the data collected from one open-ended question from the questionnaire and the interview transcripts. Unexpected findings, such as outliers, were identified throughout the data analysis. Outliers are important in that the data provide additional context and a deeper understanding of the participants' perspectives, and experiences, as well as implications for future research.

Participants described workplace satisfaction include behavioral, psychological, and physiological health; personal impact; personal applicability; as well as organizational factors such as reinforcing the organization's values, culture, and image. Participants also discussed the negative effects of the pandemic that were minimally impacting compared to the positive effects related to the workspace. The negative effects included concerns with the prospect of when to return to work in person, social distancing needs in open workspaces and shared offices, and socializing in person. Positive impacts as a result of the pandemic influenced satisfaction which provided the participants' work-life balance due to the work-from-home policy and the reduction in commute.

Organizational factors were critical in evaluating multiple dimensions of workplace satisfaction and establishing a connection to interior design driven by aesthetics and certain design dimensions. These design dimensions such as colors and decoration and accessories, as well as the buildings or personal amenities and features, had greater influences. The

organizational factors identified three sub-dimensions which were corporate values, corporate culture, and corporate image or representation. The themes collectively answered the research questions and together with the outliers describe a new phenomenon.

1) Theme I: Feeling and experience of the workers about the workplace

The participants reflected on personal experiences with the interior design and design dimensions attributed to feelings of happiness, cheerfulness, and joy. The participants described the interior design and the design dimensions also attributed to a socially engaging and encouraging gathering. The participants largely discussed their feeling of happiness with the workspace and their positive experiences with the overall workplace. One participant described a feeling of calmness, happiness, pleasure, and a feeling of welcoming attributed to the color scheme of the overall design. Another participant described the workspace as feeling "homey" and that it influenced workers to willingly stay late at work due to the positive feelings. A third participant shared that the overall design made it easier to breathe and the new furniture added a spark to the day.

Feelings about the colors of the workspace were shared among multiple participants. One participant connected the colors used to the feeling of energy and providing focus. There was additional support for this connection by another participant who liked the modern look and described the warm colors and simple patterns provided the individual the ability to focus. Other participants described the large windows provided natural light and opened up the space according to one of the participants and another felt that the upholstery pattern of the furniture complimented the area, creating a very positive vibe. Additional comments about the feelings and experiences of the workers regarding the workspace can be found in Table III. Fig. 2 shows photographs illustrating this theme of the "feeling and experience of these workers about the workspace".

TABLE III: FEELING AND EXPERIENCE OF THE WORKERS ABOUT THE WORKSPACE

Theme Description: Workers described the work environment as relaxing, peaceful, and comfortable. Workers described positive psychological impacts because of the calming colors which are described as pleasing and comfortable. Natural light and general lighting provided a comfortable space to work, and the sleek, modern, and minimalistic design looks attractive and pleasing while the natural elements in the overall décor provided a feeling of home.
PSI1-comfortable, pleasant, warming
PSI9-relaxed, not stressed, peaceful, calming
Quotation examples:
P1: It's very comfortable, It's just a very pleasant environment. It's just a really pleasant place to work. In all, it's just a very comfortable enjoyable place to be.
P11: A little relaxing area with a TV, for those who want to feel more relaxed and comfortable.
P13: I think of the colors and feeling of the environment, it's almost a spa experience, but yet, obviously you're not at a spa, it's clearly a professional and corporate environment, but it's very, just kind of calming and relaxing at the same time.

2) Theme 2: A shift of corporate culture

Participants described the availability of and accessibility to personal amenities such as private phone booths to make or take personal phone calls, a mother's room, and social gathering spaces that reflected the shifting culture and values of the company in support of the needs of the employees. Participants described positive impacts from the new amenities provided with the remodel of the space, such as communication, teamwork, and relationship building are encouraged by the organization. Participants also perceived that the organization cared to meet employees' personal needs. One participant shared that there were many options; bountiful seating, assortments of beverage options, cold storage, food warmers, and entertainment areas, and the access to these amenities is 24/7. Participants reflected on how before the remodeling, there were no private phone booths, and that the addition of these amenities in the renovated office space is welcomed and needed.

Fig. 2. Feeling and experience of the workers about the workplace.

Other participants described these venues as options for workers to get away from their workspace without having to go far to be comfortable. These amenities, as described by one participant, establish a culture of support for family commitments. While the common area's amenities were mentioned, so was the satisfaction the workers had with their standing desks. Several participants mentioned the workstations specifically and shared that the workstations provided pleasantness to the work experience, life-changing to have the option of a standing desk and that it was an overall nice amenity. Additional comments about a shift in corporate culture can be found in Table IV. Fig. 3 shows photographs illustrating this theme "a shift of corporate culture".

TABLE IV: A SHIFT OF CORPORATE CULTURE

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|---|
| Theme Description: Workers described the availability of and accessibility to personal amenities such as private phone booths to make or take personal phone calls, mother's room, and social gathering spaces that reflected a shifting culture of the company in valuing and supporting the personal needs of the employees. Workers described the positive impacts of the amenities as establishing communication and teamwork, encouraging relationship building, as well as caring for employees' personal needs. |
| IISD1-Availability of and accessibility to personal amenities |
| ORG1-organizational culture |
| ORG2-organizational values |
| Quotation examples: |
| QP15: I think the private phone rooms and windowless mother's rooms are really important to establish a culture of support for family commitments. |
| P13: I think a company's reception, office, and meeting environments say a lot about an organization. Being in a clean, professional, and welcoming environment is an indication of the value that is placed on not only employees but also visitors and patients. |
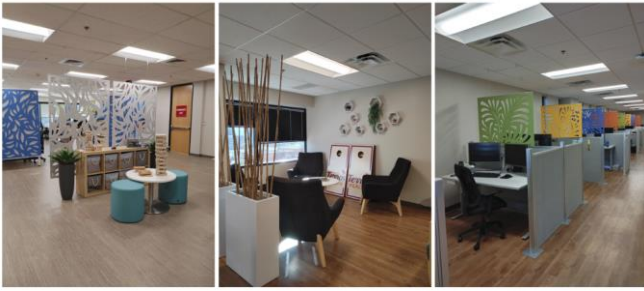
Fig. 3. Feeling and experience of the workers about the workplace.

3) Theme 3: Positive psychological impacts influenced by the overall design.

Participants described the overall interior design as inviting, welcoming, and a sophisticated work environment with a refreshed and polished look. The participants described positive impacts from the overall design such as warm colors and simple patterns helping with the focus and motivation of the individuals. The work environment feels secure and safe meanwhile, supporting the feeling of energy. Participants additionally described that the overall design motivated them to come to work and created a feeling of energy, security, and focus. The added elements in the remodel made one participant feel a sense of security with the locked doors, key card access, and the requirement of the front desk registration for visitors. Additional participants added that the key cards needed for access to the elevator and company floors made them feel safe and secure. The security guards patrolling the building added to these feelings of comfort and safety.

Besides the feelings of safety and security, the participants also described the overall design that created a positive organizational image. One participant went as far as to describe the workspace as feeling like they were working at a tech firm in Silicon Valley, attributing the sentiment to the modern and minimalistic design. Another described the workspace as an architecturally sophisticated modern office building. A third participant described the workspace as feeling like they worked in a "hundred-million-dollar" company.

Additional psychological impacts of the workspace design were shared. An overall sense of comfort was described by several participants. From the colors to the furniture and furnishings, the participants felt the workspace was inviting, comfortable, and peaceful. One participant described the decorations as contributing to a "spa-like" feeling which felt relaxed and calm. Additional comments about the positive psychological impacts influenced by the overall design can be found in Table V. Fig. 4 shows photographs illustrating this theme of "positive psychological impacts influenced by the overall design".

TABLE V: POSITIVE PSYCHOLOGICAL IMPACTS INFLUENCED BY THE OVERALL DESIGN

Theme Description: Workers described the overall interior design as inviting, welcoming, and a sophisticated work environment with a refreshed and polished look. Workers described positive impacts of the overall design such as warm colors and simple patterns helping with focus and motivating them to work meanwhile, supports the feeling secured and safe.

IISD3-overall interior design impression
BI1-motivated to come to work
PSI2-inviting, welcoming
PSI5-feeling secure, safe, protected
PSI6-focus, concentrate
ORG3-organizational image

Quotation examples:
P10: The security is good. I don't feel threatened at all.
P11: I feel safe. I feel completely safe where I'm at.
P13: For me, the renovations improved my satisfaction in the sense that I think it gives our company a more polished look. It gave us a refreshed appearance and that has a reflection overall on what our company is about and how our employees' experience works. So, it improved my satisfaction in many ways.
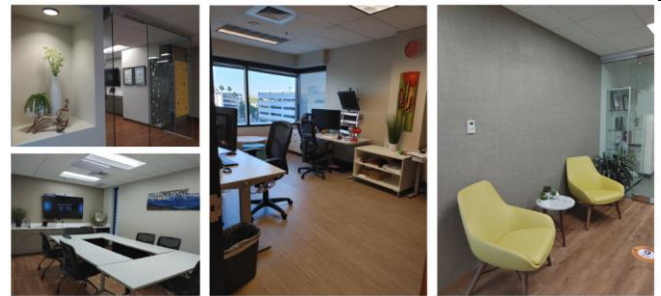

Fig. 4. Positive psychological impacts influenced by the overall design.

C. Outliers

Outliers described the complexity of the organic nature of building design and human nature. As a result, outliers described the complexity of people's interpretation, perceptions, and reactions, such as a response to the design and the environmental elements not included in the design of the study. The findings suggested psychological impacts, behavioral impacts, as well as a positive reflection on the organization such as organizational culture, values, and image suggesting relationships to personal culture and values, and the innate need to connect with others which also described constructs of the social theory [11] and the Personality Adjusted Model (PAM) [12].

The new phenomenon related to office space design and workplace satisfaction was not about satisfaction or dissatisfaction with a specific design dimension. For example, one participant was dissatisfied with the open office concept and for having lost private office space. However, the participant was overall satisfied with the amenities that were added and the aesthetic of the design. The participant cited that the remodel has positively reflected the culture and value of the organization and therefore influenced the participant to feel positive and satisfied. This outlier described findings that went beyond the design of the study and the expected findings by the researchers.

Although it was not our intention to implicate another theory or theories, a subjective lens, and an open mind led to the discovery of the outliers. The outliers as well as the implication of other theories supported the themes. The findings as parts of the outliers and implications of other theories provided a deeper understanding of the participants' experiences and reflections that answered the research questions. The findings link to the social theory, such as the need to connect to others, suggesting further study is needed to understand how social theory is related to work satisfaction based on the interior design and space planning of the office space. According to [12], the basic constructs of the social theory include the innate need to connect to others such as through social interactions, communications, meanings, and

social exchange.

Additionally, to thoroughly understand satisfaction, we cross-referenced a more recent satisfaction model. The purpose of looking at a more recent satisfaction model was to gain a deeper understanding of the implications that were discovered from the data of the study. We studied Personality Adjusted Model (PAM) which measures personality traits in addition to American Customer Satisfaction Index Model's (ACSM) base determinants – perceived expectation, perceived value, perceived quality, complaints, loyalty, word-of-mouth, and reported satisfaction. Thus, we also concluded that constructs of each of these theories and models, the theory of perceived satisfaction, PAM, and social theory, established the conceptual definition of workplace satisfaction. Additional research to investigate the dimensions of organizational culture and values, personal culture and values, physiological implications, and psychological implications, may create a potential theoretical framework for studying workplace satisfaction and workplace design.

The findings described a new phenomenon related to office space design and workplace satisfaction from the perspective of psychological and cultural. The participants discussed the experiences and the elements of the space that influenced them and went beyond the theory of satisfaction and cognitive interpretation. The outliers identified in the study provided a deeper understanding of the participants' experiences and perceptions.

V. DISCUSSION

Our study explored how a newly designed facility impacted value creation and satisfaction. There were several positive workplace satisfaction outcomes from the pandemic. Participants described positive workplace satisfaction related to the work-life balance due to reduced commutes and the work-from-home policy. The uncertainty of the various impacts caused by the pandemic including the duration of work-from-home was identified as a concern although these factors did not influence workplace satisfaction. As workers and the management team of the organization followed the Centers for Disease Control and Prevention (CDC) guidelines to minimize the spread of COVID-19 [14], the influence of high-risk factors like the open office concept and shared offices was insignificant. The critical findings from this study indicated that the new interior design of a remodeled office space influenced workers' satisfaction from multiple perspectives. Participants went beyond connecting satisfaction to a specific indoor environmental element. Instead, participants defined influences on satisfaction based on overall health implications (e.g., psychological, behavioral, and physiological) as well as the synergy of the personal value system and the organization's values and culture. The findings provided a new way to look at the design approach.

The synergies that were derived from the organization's culture and the workers' value system yielded high levels of satisfaction. The organization's culture defines how an organization behaves intending to support the overall strategic plan [13]. As a result of the remodel and the added amenities, the employees described a major shift from the former organization's culture to a new employee-centric organizational culture. The added amenities such as a mother's room and phone booths showed that the company recognized employee needs and personal well-being. This shift embraced the values of the organization – "Compassion: People care by caring people and being supportive." The workers also attributed satisfaction to a refreshed image through the updated aesthetics and viewed the office remodel as part of this effort by the organization.

Aesthetics is driven by the overall interior design that encompasses various design dimensions, such as colors, decoration, and accessories that contributed to satisfaction with the organizational image as well as workers' perspective. The overall aesthetics of the new interior design influenced workers' happiness and motivated the workers to come to work. The overall layout design and functionality encouraged social engagement and social gathering. This increased opportunity for social interaction and team building which influenced positive psychological effects and well-being of the workers. The findings also suggested that communications, teamwork, and relationship-building were improved by the redesign of the office space.

Overall, the impact of the redesign of the office space was positive. Perceived satisfaction by the workers went beyond the spatial elements of the interior design such as the design dimensions or environmental dimensions. The findings suggested personal connections such as linking a personal value system to the organizational factors of representation, image, culture, and value that drove overall satisfaction. Differing from traditional design practice and layout planning, the findings suggested space planning based solely on functional needs no longer applies. Designers and other practitioners of space planning may incorporate multi-facet dimensions to render a design to be effective in addressing functional needs, aesthetics, social needs, and reflection of a value-based system.

Through further discussions and interpretation, we discovered that the findings that described the phenomenon also implicated other theories. The constructs of the social theory, as well as the Personality Adjusted Model (PAM), were implicated. Based on the characteristics of PAM, we discovered that the participants connected perceived satisfaction with the overall design to organizational culture and value factors where specific design dimension was interpreted as supporting or matching the personal values of the individual. We also discovered that the participants interpreted the experience with the open office concept and flexible workspace as personally important. The participants based their perspective on a positive or negative experience with a design dimension and were driven to adapt to the environment such as, in the example of making it works in an open office concept workspace.

Therefore, The theory of perceived satisfaction partially aligned to support the findings of the study. Thus, we concluded that additional study is needed to investigate a potential theoretical framework based on the dimensions suggested by the study's findings which included organizational culture and values (and image/representation), personal culture and value, psychological implication (and behavioral), and physiological implications. Fig. 5 presents a visual illustration of the phenomenon based on the collected data and the data analysis of workplace satisfaction reflecting

psychological and cultural perspectives and a visual description of the conceptual definition as suggested by the study's findings.
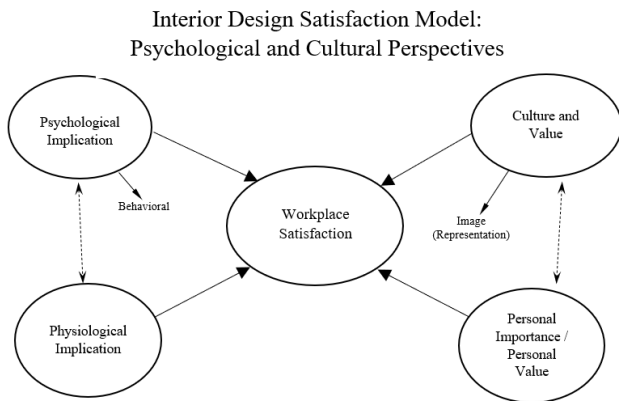

Fig. 5. Interior design satisfaction model: Psychological and cultural perspectives.

VI. Conclusion

The new phenomenon related to office space design and workplace satisfaction went beyond the typical environmental factors, described as design dimensions in the study, that suggested health implications (physiological, behavioral, and psychological) and organizational factors were important in evaluating workplace satisfaction. The other dimensions that influenced positive workplace satisfaction included the design aesthetics, personal amenities, and a functional layout that provided positive psychological effects such as relaxation, peacefulness, and comfort. It was discovered that the theoretical foundation of perceived satisfaction alone did not fully support the findings of the study.

Based on the study's findings, we concluded that the theory of perceived satisfaction partially described the phenomenon as the findings also implicated constructs of the social theory and Personality Adjusted Model (PAM) when describing the experiences that led to workplace satisfaction. Thus, we also concluded that the constructs of each of these theories and models, the theory of perceived satisfaction, PAM, and social theory, established the conceptual definition of workplace satisfaction related to office design. Additional research to investigate the dimensions of organizational culture and values, personal culture and values, physiological implications, and psychological implications, may create a potential theoretical framework for workplace satisfaction that can properly describe the new phenomenon. Beyond the traditional intellect of design schooling and techniques, the findings suggested that the interior design of the new workspace may include the dimensions discovered in this study to effectively influence satisfaction. Our findings suggest a new way to look at the design approach which focuses on cultural and psychological perspectives and additional studies are needed.

Based on the results of the study, the recommendations for future studies include investigating a new theoretical framework that focuses on workplace satisfaction as it relates to the constructs of the social theory, the theory of perceived satisfaction, and the Personality Adjusted Model (PAM). The

results will advance the literature further providing an apparatus for use in future studies that focus on the built environment. Next, organizational factors emerged as one of the main dimensions and outliers that established a theme in the study. It is recommended that future research investigate how factors related to organizational level play a role in influencing or relating to the interior design of an office space attributed to workplace satisfaction. Third, the design dimension open office concept remains a contentious debate. It is recommended that future research investigate the design of the open office concept and factors of the open office concept that lead to positive workplace satisfaction. The following recommendations are related to the pandemic and the use of office space.

This study took place near the end of the COVID-19 pandemic when the placement of workers was still in limbo divided by working from home and at the office. There is little literature that contributed to an understanding of the impacts of a pandemic on workplace satisfaction and its long-term effects. It is recommended that future research investigate the effects of a pandemic related to workplace satisfaction and the evolution of impacts on a post-pandemic work environment and space use. Lastly, an outlier that identified those who shared an office with other workers were dissatisfied with the prospect of returning to work at the office full-time. There is a gap in the literature that focused on the relationship between the effects of a pandemic to open office concept design or shared spaces. It is recommended that future research investigate the relationship of the open office concept or shared workspace to workplace satisfaction in a post-pandemic world. The following recommendations focus on how to further this study.

The data collection for this study was completed months before official declarations by the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and the President of the United States of the end of COVID-19 as a pandemic [15]. With an official ending to the pandemic, occupancy of office spaces may have increased as more workers are returning to work in person. New data may be collected to draw a contrast between the findings of this study and the post-pandemic workplace experiences. In another direction, frame a study using the suggested conceptual model as the result of the findings in this study, the Interior design satisfaction model: Psychological and Cultural Perspectives, to determine the effects of the interior design and design dimensions on the user occupants. The focus of the new study is to further gain a deeper understanding of workplace satisfaction through the design of the office space.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Frankie Lee designed the research, conducted the data analysis, and wrote the paper. June Maul proofread and provided a quality review. Crystal McCabe conducted the interviews and reviewed the findings. James Dudleston consulted and reviewed the methodology and design of the study and the findings. Muthu Kuchanur consulted and

reviewed the literature review and the findings. All authors approved of the final version.

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