

TRANSLATING CASINO SERVICESCAPES TO IMPROVE ARCHITECTURAL
RESPONSES ADDRESSING HEALTH AND WELLNESS

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Abstract

The synthesis of research and practice across two interrelated disciplines (hospitality administration & hospitality design) in the context of integrated resorts (IR) finds increased importance as legalized gambling expands into new markets and the architecture of tourism and entertainment is increasingly among the most expensive, iconic, and visited places on Earth. Among the most challenging aspects of IR is the management of societal concerns surrounding casino development. Through this mixed methods study, five phases of research lead to greater understanding of how to not only address concerns but mitigate the problem and enhance guests' overall experience through architectural strategies. The design revelations leverage lessons inherent in hospitality research and illustrate how to apply hospitality theory to the practice of architecture. Phase one content analysis translates key concepts and identifies missing links between hospitality and architectural research. Phase two survey leads to better understanding of casino guest expectations and willingness to see change in casino settings. Phase three interviews gauge IR architects' sense of the accuracy and feasibility of guests' sentiments toward the casino design. Phase four S-O-R using AI to mimic human subjects illustrates a key research potential in addressing the limitations of previous research that relies of visual stimuli to evaluate perceptions of design variables and people's reactions to them. Phase five Delphi Technique leads to consensus among IR design experts on how to implement, assess, and possibly institutionalize wellness design strategies. The findings describe theoretical and practical implications of casino servicescape design aimed at improving physical health and mental wellbeing.

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Dedication

To my students – past, present, and future.

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List of Definitions

AI – Artificial Intelligence

CSR – Corporate Social Responsibility

HSW – Health Safety and Welfare

IR – Integrated Resort

NIMBY – Not In My Backyard

PG – Problem Gambling

RFP – Request For Proposals

RGB – Red, Green, Blue

SERVQUAL – Service Quality

S-O-R – Stimulus, Organism, Response Theory

YIMBY – Yes In My Backyard

Chapter 1

Introduction

Approximately two million adults in the United States meet the criteria for severe gambling problems and another 4-6 million may be considered mild or moderate problem gamblers (NCPG, 2023). These numbers represent 1-3% of the national population, respectively, and they are in alignment with similar estimates of problem gambling worldwide: US (1.29%-2.43%) (Gabellini et. al, 2022), Europe (0.12-3.4%) and different countries in the world (0.12-5.8%) (Calado and Griffiths, 2016). The National Council on Problem Gambling (NCPG) estimates the social cost of problem gambling to be \$7 billion in the US annually. Thus, it becomes clearer why although so few people may be problem gamblers, the economic and social costs of problem gambling can be of great concern when considering casino industry expansion around the world. Public funding in the US allocated for problem gambling services has risen 5% in recent years from \$73million in 2016 to \$94 million in 2021 (NAADGS, 2021). Jurisdictions around the world such as Australia, Brazil, Greece, Japan, South Korea, and more spend hundreds of millions of dollars every year on comparable social services.

This dissertation posits that in addition to funding social services, addressing a more fundamental element of casino gambling is within reach. The quote, “We shape our buildings; thereafter they shape us” (Churchill, 1943) can be considered anew in the context of casino design. How do the physical building characteristics of casinos shape us? With casino-style gambling’s expansion across the country and around the world in recent decades fueled by economic promise, communities faced with the proposition of integrated resort development within the fabric of their built environments grapple with the negative side effects of the industry, which prompted this essential question, “What is the appropriate presence of permitted

gambling in modern society?” (Eadington, 1998). Eadington’s question was originally focused on broad concepts: forms of gambling, accessibility to gambling, promotion of gambling, protections and regulations around gambling. In considering what the appropriate presence of permitted gambling might look like in the casinos of tomorrow, already more than twenty years after the original question, we can think of more specifics. The immediate human-scaled contexts surrounding casino gambling and the impacts the built environment can have on people’s thoughts, feelings, and behaviors narrows the scope yet deepens the question.

The human brain is the most complex organ in the known universe (Giovanni, 2015). Its complexity contributes to it being the latest and most difficult frontier in medical research. Just as the brain is regarded as the last frontier in medicine, hospitality research has been described as entering its final frontier when considering the complexities of its servicescapes and atmospherics (Pizam, 2019). Hospitality now claims some of the most complex and expensive facilities ever built on the planet. Steve Wynn described the design of his casino resorts as ‘the cathedrals of our time’ (Anderton, 1999). The casino complexes of Macau are presented as a frontier in capitalism and a model of urbanism (Al, 2018). Indeed, casino resorts function like entire cities within a single building. With the Environmental Protection Agency estimating that Americans spend 93% of their life indoors (Klepeis, Nelson, et al., 2001) along with increased understanding of environmental psychology’s relationship to the built environment, the scope of design is rapidly expanding (Kopec, 2012). To better understand the relationship between architectural design, the servicescapes of casinos, and the mental well-being of guests, this study will employ a mixed method approach informed by Creswell and Clark (2017) including grounded theory, survey of casino guests, interviews with architects of casino resorts, and an experiment examining potential impacts of servicescape design elements on mental states using a

Stimulus-Organism-Response (SOR) framework (Mehrabian and Russell, 1974) and its application to SERVQUAL (Parasuraman et al, 1988).

Architectural design has the responsibility of providing shelter and often the ambition of expression through abstraction. Integrated resorts (large, multi-amenity resorts with casinos) have excelled at both becoming symbols of prosperity while efficiently accommodating thousands of guests simultaneously. Yet, as our architectural definitions of health, safety, and welfare (HSW) expand and our knowledge of mental health, social equity, and environmental well-being among others is increased through scientific research, it will be increasingly important to challenge the policies that drive design decisions. The phenomenon of integrated resorts (or cities within a building) can have such unexpected drawbacks as hurting segments of the surrounding local economies they were designed to enhance or negatively contributing to social, physical, and mental health and wellness issues. Policy makers seeking to preserve the neighborhood's mom and pop shops and the cultures of the surrounding context may implore architects and developers to expand their notion of integration to include the community, economy, and environment. On the other end of the spectrum, human-scaled stimuli in a casino servicescape can affect perceived behavioral control among customers (Ho and Lam, 2019), so hospitality researchers with acute architectural knowledge may advance such studies until they become drivers of health and wellness policy and continually better practices.

Now more than ever, the social, emotional, and psychological factors impacting hospitality and tourism are capable of being studied with greater precision. In the conceptual model, hospitality organizational culture was defined through five dimensions similar to those of SERVQUAL: patient-clinician interactions, patient-support staff interactions, workplace climate, external stakeholder relations, and facility atmospherics; the ambience created by architectural design

decisions (Pizam, 2020). Interestingly, Pizam has hypothesized in a related keynote address (2019) that perhaps the fifth dimension, ambience (design of the built environment), should not be considered the final dimension but the final frontier. The dimension is not truly a separate determinant of SERVQUAL or culture but an overarching force that sets the stage for all other conditions.

It is in the “setting-the-stage” process associated with integrated resorts that the pros and cons of casino development are most pronounced. While there are great economic benefits of casino development, several negative impacts have been identified, namely problem gambling along with crime, corruption, socio-economic inequality, public attitudes, and more (Rose, 1988; Eadington, 1998, 1999a; Walker and Barnett, 1999; Reith, 2006; William et al., 2011; Walker, 2014). Before most integrated resorts are approved for development, a robust system of protective measures and social services are put in place to combat the negative effects of gaming. Educational programs, improved welfare systems, limits on the number of casino visits in a given time period and even admission fees are among the safeguards designed in response to casino development and concerns of problem gambling (Ho, 2020). This dissertation is an initial investigation of the design of casino servicescape itself as a means of improving wellness among guests.

Beyond the Opening

In the decades since Bitner coined the term “servicescape” in 1992, over 200 articles have focused on the concept, and the annual publication of related articles has been steadily increasing as businesses look for every competitive advantage to retain customers and employees. Servicescape is defined as “the environment in which the service is assembled and in which the seller and customer interact, combined with tangible commodities that facilitate

performance or communication of the service”. These environments are composed of numerous elements impacting our sense of sight, sound, smell, touch, and occasionally taste, and the servicescape concept has since been expanded to virtual spaces as well. There is an infinite variety of variables one may encounter with the design elements affecting our senses, yet most research presents over-simplifications of the stimuli. Color in some studies might be described as warm or cool or blue or red, but hues can take on any color of the entire visual spectrum of light. Light can be described through additive or subtractive measures (as pigments on material objects or as colored light reflecting off of various surfaces), and they can be applied in a variety of opacities, orientations, and other distinguishing characteristics. Music and scent can be similarly specified but come with comparable challenges of replicating study conditions. Classical vs. contemporary music may be examined, but the effects of Mozart and Rachmaninov (both classical composers) may have significantly different effects on perceptions of a servicescape as would contemporary music played at 50 decibels vs. 100dB. Of particular interest are the components of servicescape described as layout and design. The architecture of hospitality venues can be quite elaborate, and casino resorts as noted previously are among the most complex. In the same way there may be an oversimplification of color, sound, or scent, the missed opportunity to more accurately describe layout and design with architectural language is multiplied as servicescapes extend through greater dimensions of length, width, and height in physical (and virtual) spaces.

A systematic literature review of servicescape articles included studies whose abstracts included such synonyms of servicescape as ‘atmospherics’, ‘aesthetic element’, ‘physical environment’, ‘physical design’, ‘interior design’, and ‘architectural design’ (Mari and Poggesi, 2013). The review showed 85% were quantitative studies and 73% of them were field studies

with several limitations noted due to the number of uncontrollable variables (Mari and Poggesi, 2013). It is recognized that on-site observations contain the benefit of real settings, but because people respond holistically to their environments, it is difficult to separate investigated factors from the myriad of other “contaminators”. Thus, theories have been built around scent or music as drivers of in-store behaviors and customer evaluations of products or services, but accounting for behaviors impacted by in-store stimuli in concert with all other servicescape elements (e.g. lighting, air quality, materiality, proportions, paths of circulation, etc.) invites a more comprehensive analysis of servicescape composition (Mattila and Wirtz, 2001). To compound the challenge, each of these additional stimuli have multiple factors within them. Lighting can be measured in its type (accent, ambient, signage, task, etc.), its lumens per square foot, its color temperature, and more. Air quality can be measured in subjective terms like scent or freshness or in more objective measures like its CO2 parts per million, air exchanges per hour and velocities. Materials can be judged by visual preference or more careful examination and understanding of embodied energy, durability, sustainability. The list of seemingly uncontrollable variables in the hospitality literature may appear endless to administration or marketing researchers, but architects trained in the art and science of building design and construction can see many of these stimuli as very controllable (Wolfe and Allen, 2022). It is the architects and interior designers’ ability to specify the exact characteristics of servicescapes through construction documents and written specifications that can be utilized in the increasingly complex analysis of casino servicescapes with respect to occupant well-being.

An even larger gap emerges when review of SERVQUAL servicescape research reveals that most studies focus on the atmospherics’ impact on guests’ purchasing decisions most often described as behavioral intention, which focus on familiar metrics like likelihood to purchase,

book, recommend, or revisit versus a deeper investigation of servicescape effect on behavioral health which would include awareness or analysis of self-control.

Problem Statement

This gap appears at least partially fillable when recognizing the number of uncontrollable variables described by hospitality researchers represent a fraction of *controllable* variables accessible to architectural researchers. Reexamining servicescape-related questions through the lens of hospitality design seeks to not only close the research gap but close the loop between servicescapes, customer and employee sentiments, and overall business performance.

Most servicescape research has focused on the more widespread spaces of the hospitality/leisure industry: shopping malls, retail stores, restaurants, hotel lobbies, guest rooms (Mari and Poggesi, 2013). Few studies have focused on casino servicescapes, with primary foci aimed at understanding the relationship between casino aesthetics or ergonomics and customers' intentions in the leisure setting (Wakefield and Blodgett, 1996; Lucas, 2010). Studies in this area grapple with conceptions of 'aesthetics' as a variable of casino design. Aesthetics or décor are routinely summarized as overall attractiveness or occasionally mentioned in reference to a nondescript style (e.g. modern vs. traditional) and include everything from floor, wall, and ceiling to banners, signs, furniture, and fixtures. There is room to further define these constructs for clarity purposes and to distinguish between controllable variables. Moreover, increased specificity in the definition of architectural elements in servicescape research may lead to distinguishing between common customer behaviors and more concerning issues of customer mental health and wellbeing. The literature is almost devoid of any studies that analyze casino servicescapes as triggers for addictive behaviors.

Many of the articles above have aimed to see implications of their servicescape research impact architectural decision-making, leaving a growing need for hospitality design research to translate between theoretical hospitality research and applied architectural practice. This can be seen in the following quote, “As part of their responsible gambling policies, the government[s] may need to regulate casino designs that induce excessive gaming behaviors.” (Ho and Lam, 2019). Architectural servicescapes set the stage for individual behaviors within various building types, but how can the factors examined in SERVQUAL S-O-R studies focused on servicescape be translated into more meaningful design directives or guidelines to be interpreted by professionals in the hospitality design industry. The opportunity to contextualize the taxonomy of hospitality research with the taxonomy of architectural practice is seen as foundational to this study.

Research Questions and Thesis Statement

The purpose of this mixed methods study is to understand how casino servicescapes are conceptualized across two distinct disciplines working in hospitality (administration and architecture), to what extent casino guests recognize a building’s influence on behavior, the ways in which those casino environments influence health and wellness, and whether or to what extent servicescape design can evolve to help positively address this large community concern. An exploratory sequential mixed methods research design was developed to further enhance understanding of the issues, where they overlap, and how they relate to one another (Creswell & Clark, 2017). The progression from qualitative to quantitative hierarchies and back again were sequenced to examine the opportunities for incremental contributions in the relatively small overlaps between hospitality administration and architecture or more specifically: casino servicescape, community concerns around gambling, and architectural design.

Five research questions guided this investigation and its corresponding phases.

Research Questions

Q1. How do you translate research findings related to casino servicescapes across disciplines? Specifically, between hospitality/business/marketing research to architectural design research.

(P1 – content analysis)

Q2. To what extent are casino guests aware of the servicescape’s ability to hinder or enhance the gambling experience? (P2 - Survey) Q2B To what extent should casino servicescapes be regulated to address health and wellness?

Q3. Are the “uncontrollable variables” of casino servicescape controllable according to IR architects? (P3 - interviews)

Q4. How can AI be leveraged to systematically explore the seemingly “uncontrollable” variables of (casino) servicescapes in an experimental setting? (P4 – S-O-R)

Q5. How likely are we to see servicescape design rethought to address health and wellness? by whom? In what way(s)? (P5 – Delphi)

Thesis Statement

Before a jurisdiction new to integrated resort development can begin planning, design and construction, there is usually a long process of political, legal, and community engagement in response to concerns stemming from gambling. Mental health, addiction, crime, etc. are issues seen in years-long processes stalling proposed developments in Japan, Brazil, Greece, and major cities in the US among others. *A condition of actualizing the billions of dollars-worth of servicescapes included in an integrated resort (e.g., lobby, guestrooms, meeting space, spas, restaurants, bars, night clubs, performing arts venues, retail, and more), is a plan to address the*

concerns surrounding casino development with design focused on (mental) health and wellness as an extension of the overall quality of the guest experience.

Service, loyalty, experience, and several other intangibles in the field of hospitality research are described as the final frontier in hospitality culture, but they were clarified with mention of the built environment, “perhaps this should be the first because it sets the stage for all other conditions...” (Pizam, 2020). The built environment sets the stage for innumerable conditions: guest experience, satisfaction, guest-staff interactions, loyalty, workplace climate, employee performance, profitability, external stakeholder relations, public perception, and more. The design of integrated resorts and specifically casino servicescapes sets the stage for gambling... be it healthy, responsible gambling or problem gambling.

By translating concepts of health and wellness research into actionable strategies to be implemented in the architectural design process, one of the biggest challenges to resort development (casinos) can be positively addressed through the physical characteristics of the facility itself.

Research Design

This grounded theory evolves across five distinct phases of mixed-method research. First, a content analysis of servicescapes and atmospherics research from within the hospitality literature will take place. Then, a comparative analysis to analogous elements of architectural design as defined within the field of architecture establishes a taxonomy for translating between the two fields. Second, a survey analysis of casino guests on perceptions of servicescape ideas aims to understand sentiments toward design elements aimed at mental health and wellness. Third, sentiment analysis through transcription of interviews with integrated resort architects and statistical analysis of survey responses from casino guests offer insights on a possible taxonomy

of casino servicescape elements. Fourth, an experimental design phase using key terms from earlier phases as stimuli in an S-O-R-inspired study to generate architectural images. AI-generated drawings, virtual models, renderings, and similar content representing the complexity of servicescapes will help test how manipulations of hospitality design variables may elicit unique responses potentially affecting guests in casino environments. Finally, a Delphi Technique to search for consensus in how to approach the design of casino servicescapes with the goal of positively addressing concerns of mental wellness is conducted.

Research Objectives

This study focuses on the impact architectural design can have on improving casino servicescapes, guest perceptions of those servicescapes, and their optimization as a central component of integrated resorts in the hospitality industry. Literature is replete with examples of the built environment influencing everything from business efficiencies to guest experiences, but the relationship between the building and business effectiveness and guest engagement is increasingly difficult to measure yet essential for continued improvement.

The architecture profession has evolved over millennia to produce some of the most complex manifestations of cultures around the world. From castles to cathedrals and museums to music halls, science and art have come together to push architectural design to uniquely support human activities throughout history. In recent decades the grandeur and complexity of traditional architectural icons like temples, mosques, and tombs has been superseded by an archetype of the hospitality industry. Integrated resorts are among the most complex and expensive building projects in the world as they combine five-star accommodations, world-class performing arts venues, flexible meeting space, destination dining, pools, spas, nightclubs, retail, and more.

While innovations in building materials, construction methods, supply chains, information modeling, and other technical advances have pushed the boundaries of what is buildable, renewed focus on physical, mental, and social well-being provide an opportunity to further examine how and why we build. The relationship between the tangible and the intangible presents opportunities for hospitality design and integrated resorts to integrate more than just different building typologies. The thesis includes architecture's role in integrating social science and psychology among others to further the built environment's ability to respond to servicescape research.

Significance of Study

The importance of this study can be seen in several potential findings that stem from bringing "servicescape" into the lexicon of more architects and design researchers along with emphasizing "foundational architectural principles/theories" in hospitality servicescape research to recognize guests as more complex, holistic beings (as opposed to merely purchasers or gamblers) and how they benefit from better design. First, a more consistent way of describing servicescapes across disciplines would allow for hospitality research to more immediately impact architectural and interior design practice. Second, understanding casino guests' perceptions on servicescapes' impact on health and wellness in general and problem gambling in particular may lead to more focused effort toward addressing concerns through design. Third, recognition of which servicescape variables are controllable invites greater scrutiny on all elements that may contribute to casino guests' health and wellness. Fourth, examples of changes in single servicescape variables impacting perceived likelihood of problem gambling in a casino point to increased opportunities for more focused research.

Chapter 2

Literature Review

In different hospitality studies, there are varying numbers of servicescape elements being examined, and while they all build upon the literature that has come before, there are both subtle and larger differences in the ways in which those servicescape elements are described. Moreover, this opening of the literature review aims to illuminate the disconnect between the language used to describe the servicescapes by hospitality researchers and the language used by architects and interior designers to describe the same elements of a given built environment.

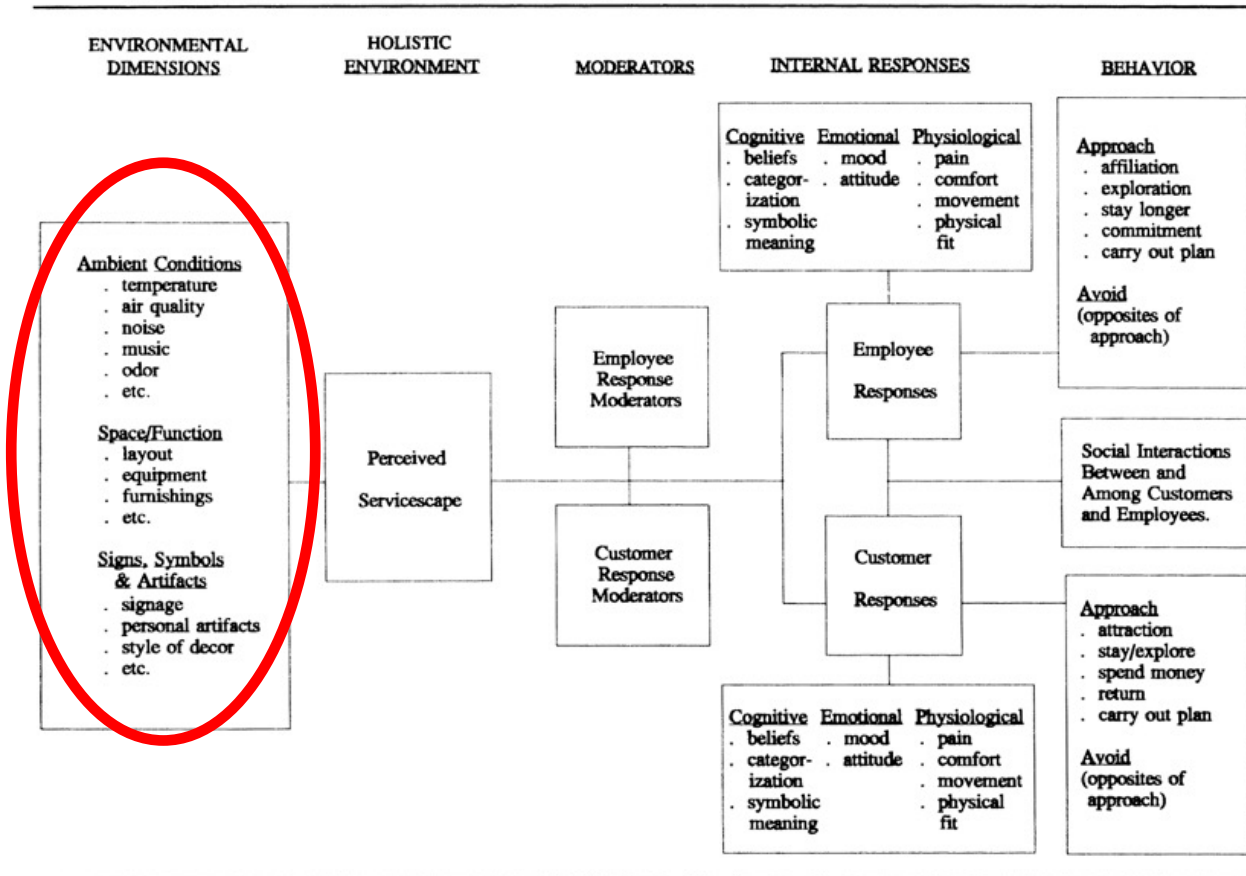
Servicescape Literature

The framework for understanding servicescape-user relationships includes three environmental dimensions (ambient conditions, space/function, and signs, symbols & artifacts) and can be seen below in Figure 1 (Bitner, 1992). Each dimension contains 3-5 or more elements that help shape the overall dimension. Ambient conditions are comprised of the following: temperature, air quality, noise, music, odor, and other factors that may be included. Space/function is comprised of layout, equipment, furnishings, and others. Signs, symbols, and artifacts is comprised of signage, personal artifacts, style of décor, and others. In this seminal text on servicescape, eleven architectural elements are explicitly listed while additional variables to consider are implied (Bitner, 1992).

Spatial layouts are described as “the ways in which machinery, equipment, and furnishings are arranged, the size and shape of those items, and the spatial relationships among them” (Bitner, 1992). The description presupposes that the layout of a space is what you are left with after you fill a building or rooms within it with the various things required by the business.

It does not include the possibility of an interpretation of the floors, walls, and ceilings as foundational to the concept of spatial layouts.

Figure 1
Environmental Dimensions of Servicescape
Framework for Understanding Environment-User Relationships in Service Organizations



Note. Figure Reproduced from Bitner, 1992, p. 60

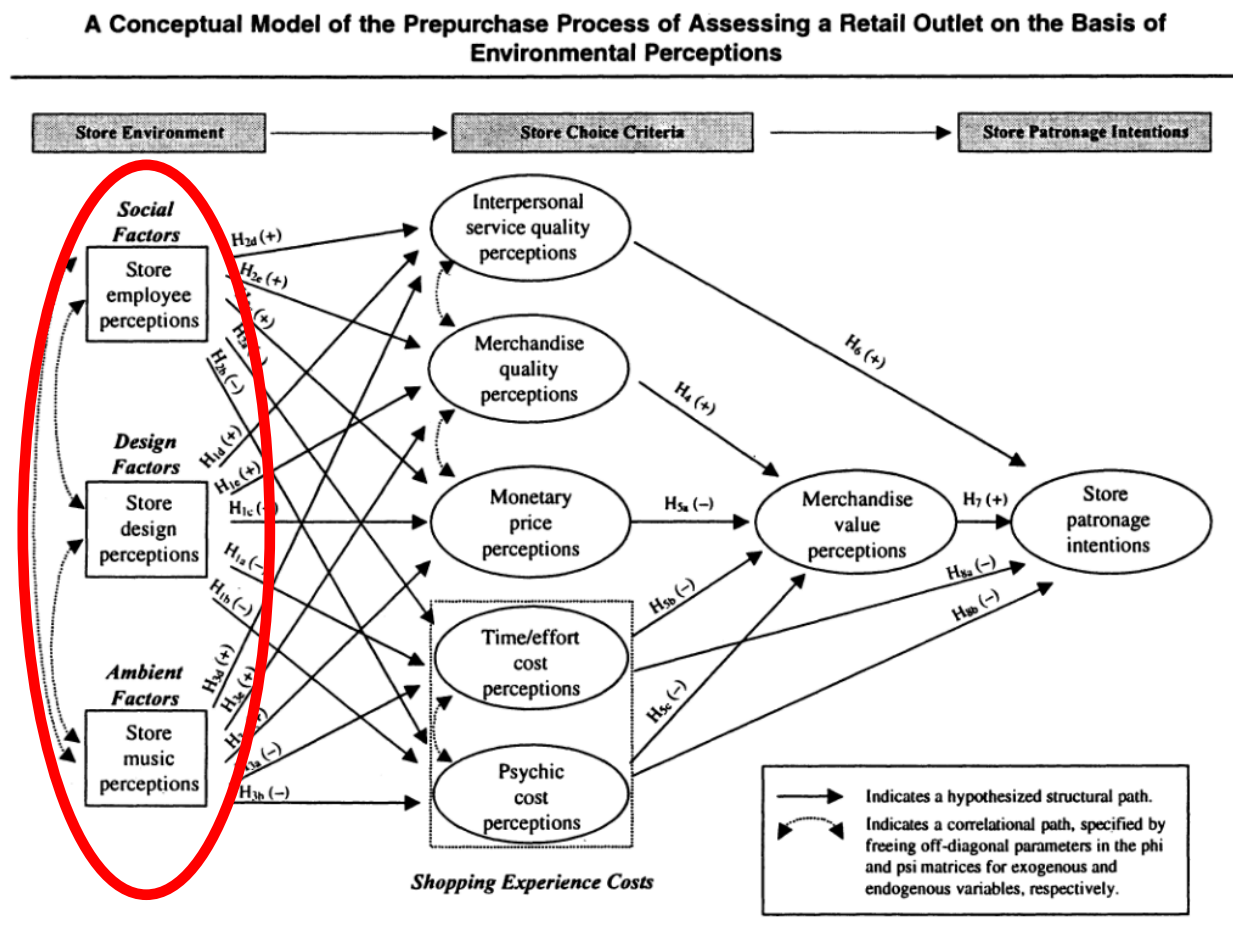
Ambient conditions include descriptions of lighting, temperature, noise, and color having influence on employee performance and job satisfaction. Lighting was not included in Figure 1 above but can be assumed to play a major role in the perception of servicescape dimensions. Similar to the dilemma of spatial layouts not including mention of the placement of walls within the building or the overall architectural plan, the ambient conditions are largely integrated with

the architectural elements of the space. Lighting does not exist separate from the floors, walls, and ceilings just as noise does not exist in a vacuum. The servicescape is experienced holistically, and when designed or analyzed by design professionals, the environmental dimensions above are all interconnected. Lighting is integrated into the architectural layout. Lighting can reinforce the layout of furnishings within the space, or it can work against it. It can be integrated into fixtures such as shelving or gaming machines or it can be built into the walls or ceiling. Lighting can be decorative or purely utilitarian. The selection of one light fixture over another or specifying one versus one-hundred impacts other ambient conditions. Certain light fixtures have filaments or ballasts that can buzz and create noise within the servicescape. Lights also generate heat, so the overall temperature of the room can become a balancing act with the lighting design.

Another highly cited servicescape paper focuses on store environment cues and their effect on perceived merchandise value and patronage intentions (Baker et. al, 2002). Like the Bitner study, this also has three main categories, but instead of ‘environmental dimensions’ they are referred to simply as ‘store environment’ and are comprised of social factors, design factors, and ambient factors. These ‘factors’ are similar to Bitner’s ‘conditions’ with design factors aligning with space/function and ambient factors nearly mirroring ambient conditions. However, the ‘social factors’ of Baker, Parasuraman, Grewal, and Voss address customer or guest perceptions of the employees and these factors appear to replace the ‘signs, symbols, and artifacts’ conditions of Bitner’s framework. Comparable to Bitner’s description of spatial layouts, the design factors of this often-cited study does not provide a comprehensive assessment of guests’ perception of store design. Good design is noted as facilitating efficient shopping or the ability to get in and out of a store quickly and easily. Poorly designed spaces are described as

having a confusing layout (Baker et al, 2002). Such perspectives on how to analyze or critique a space do not seem to account for alternative motives or preferences of customers or the extreme manifestations of the stated design factor. For instance, if efficiency is the ultimate indicator of good design, should stores not continually (value) engineer every nonessential element out of their space to create the quickest sales interaction? Yet, there are other stores where superfluous space is intended to enrich the experience of the customer and invite them to stay awhile longer.

Figure 2
Store Environment Factors of Servicescape



Note. Reproduced from Baker et al, 2002, p. 121

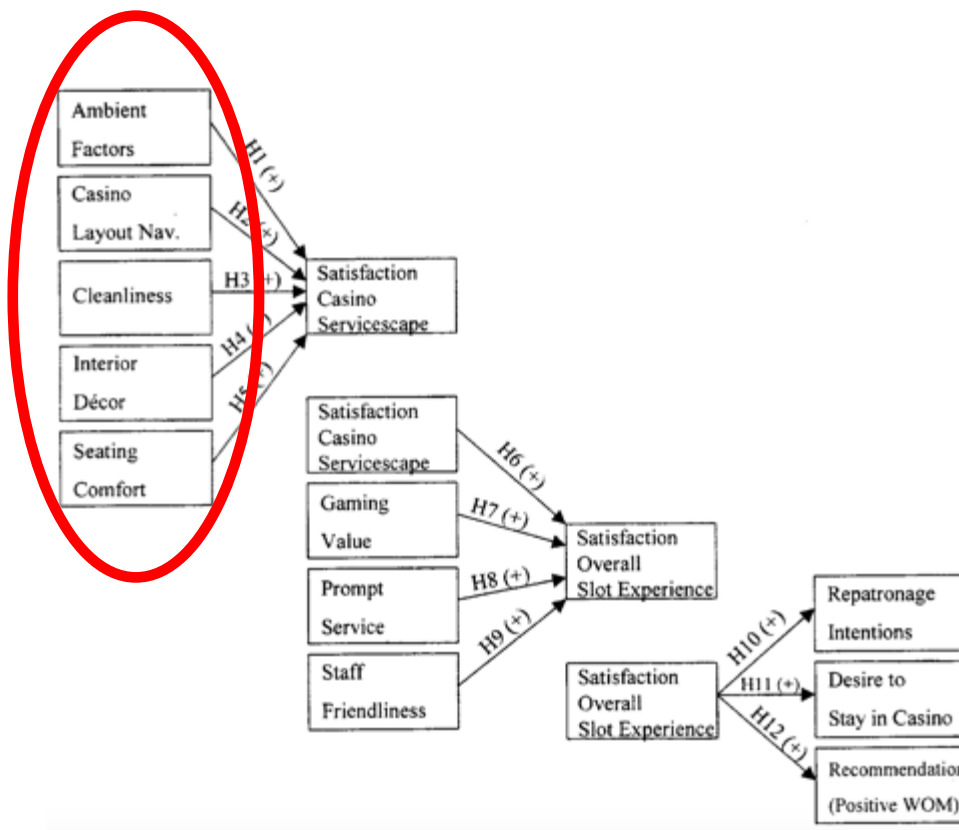
Narrowing the scope of servicescape to the slot floor of a casino, determinants of the servicescape have been expanded to five factors: ambient factors, casino layout navigation, cleanliness, interior décor, and seating comfort (Lam et al. 2011; Lucas, 2012). Casino layout navigation is consistent with previous descriptions of a space's layout being determined by furnishings or equipment being put into the space. In the case of casino floors, slot machines (not the columns, corridors, or concrete walls) are the primary contributor creating casino layout. Aisles are created by the space between slot machines, and they are deemed good in scale items for constructs developed for this study if they 'are wide enough to pass through easily' (Lucas, 2010). As was the case in the study by Baker et al. of considering extreme instances of a construct, here one may ask "how wide is too wide for aisles?" The study notes that removing slot machines from the floor may improve sight lines and traffic flow, but to what extent should a servicescape favor sightlines and traffic flow over gaming experience and variety? Imagine a casino floor with four slot machines and forty feet between them.

The removal of slot machines to address casino servicescape layout navigation sight lines or traffic flow is also described as "resulting in a form of increased capacity" (Lucas, 2012). Though it is not clear if this suggests the building or room capacity approved by the local fire marshal could be changed by taking equipment out of the servicescape (it could not), it is worth noting that in addition to the customer or guest perceptions or behaviors being examined in these studies, the totality of the architectural design is actually addressing a myriad of international building codes, state and local laws, environmental rules and regulations, and various design guidelines.

Lucas' description for 'Casino layout navigation' includes signs, which is notable as 'signs' were part of a separate dimension in Bitner's framework. It is also noted that "the

challenge for casino management is to incorporate clear and functional signage into the décor scheme,” (Lucas, 2010) which combines the determinants of Layout Navigation with Interior Décor, and possibly Ambient Conditions. Thus, in this study we see a simultaneous expansion and contraction of servicescape determinants. There are more variables listed but the more they are described, the more overlaps emerge.

Figure 3
Determinants of Casino Servicescape



Note. Reproduced from Lucas, 2010

In a more recent study of casino servicescapes, the authors appear to combine all servicescape elements into a single category called “design” and their survey instrument

references specific design “cues” as important elements hypothesized to have a statistically significant relationship to perceived control and ability to self-monitor gambling behavior (Ho and Lam, 2019). Though everything is consolidated into ‘design’, the 22 example cues begin to read as a catch-all: “responsible gaming signs and posters, (e.g. odds and chances of winning, helplines and support services)”, easy navigation, clear sight lines, perception of the servicescape, “luxury design style (e.g. crystal chandeliers, gold color, classy carpets or tile designs)”, freedom of vs. obstructed movement “(e.g. limited elbow room, seats close to the casino table, difficulty getting in and out of seats), lack of signs and directions, unclear layout).

Table 1

Comparison of Seminal Architecture and Servicescape-Related Publications’ Count and Description of Elements of the Built Environment.

Literature	Author	Year	Number of Architectural Design/ Servicescape Elements	Description of Architectural Design/ Servicescape Elements
Architecture	Vitruvius	30-20 BCE	3	Attributes
Architecture	Palladio	1570	4	Books
Architecture	Le Corbusier	1923	5	Points
Architecture	Ruskin	1849	7	Lamps
Hospitality	Parasuraman	1991	10	Determinants
Hospitality	Bitner	1992	6	Dimensions
Hospitality	Lucas	2012	49	Items
Hospitality	Ho & Lam	2019	1	Design
Hospitality	Pizam	2020	4-5	Dimensions

Each of these studies illustrate that incremental contributions have been made to the servicescape literature, yet they also illustrate inconsistencies in how researchers have applied the framework to various architectural settings. There are also potential challenges in holistically

describing and assessing the perceived effectiveness of servicescapes when using language that does not adequately encompass all of the integrated factors of a comprehensive architectural design. This will lead to the content analysis component of the study examining the various dimensions and conditions defined in hospitality research and those articulated and numerated in architectural literature (Table 1).

S-O-R Framework and Alternate Approaches in Hospitality Settings

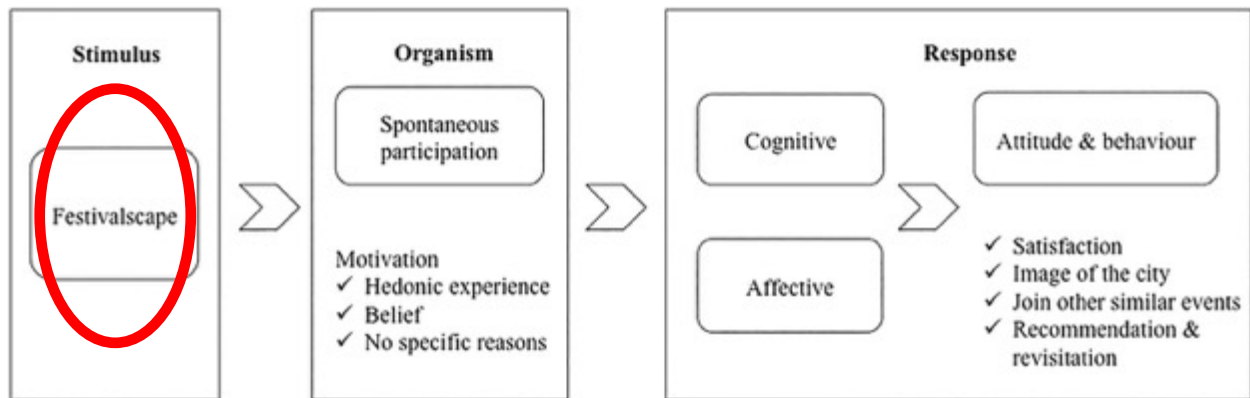
The operationalization of S-O-R framework to measure emotional response to servicescapes and atmospheric stimuli is an increasingly powerful research method. One that could yield even greater impact when recognizing the architectural stimuli are nearly infinitely variable yet individually controllable.

Atmospherics account for the several variables beyond the tangible product or service being offered by a business. Kotler (1973) established these often-intangible qualities of a place as an important marketing tool and potentially more influential than the product itself.

Atmospherics led to the conceptualization of servicescapes (Bitner, 1992), which address the physical design characteristics' impact on feelings, thoughts, and behaviors in commercial space. The literature is replete with studies of servicescapes in the last 20-30 years (Mari and Poggessi, 2013). The Stimulus-Organism-Response framework appears to have been operationalized in only a handful of hospitality settings. Based on Mehrabian and Russell (1974), the [built] environment serves as the stimulus (S), affecting conscious organisms (O), producing a behavioral response (R). Figure 4 illustrates how a designed space can serve as the stimulus affecting participants/guests, and impacting behavior (Chen, 2019).

Figure 4

S-O-R Framework Analyzing Festivalscape design on Participant Attitudes and Behavior.



Note. Reproduced from Chen, 2019, p. 767

Guest Rooms

To measure responses of consumers from different age and gender categories toward guest room design, manipulated design styles were created through a modeling software and presented as variable images to participants (Bogicevic et al., 2018). Four alternative virtual scenarios included two contemporary furnished rooms, one with masculine colors, the other with feminine colors, and two traditionally furnished rooms; one with masculine colors, and the other with feminine colors. An alternative approach would more clearly define both the furnishings and the colors. Designers would recognize that “contemporary” could in fact be a descriptor ascribed to a nearly infinite number of atmospheric stimuli within a servicescape. Not all contemporary furnishings or spaces are equal. Additionally, specifying the actual chromaticity used in the simulated color palate could lead to replicability or implementation in the real-world. The characterization of colors as either masculine or feminine may be subjective at a personal level or even dependent on different cultural associations.

While this study succeeded in acquiring over 700 valid responses, its approach to move out of the 3D architectural modeling software and into a static 2D survey instrument may have come at the expense of more meaningful conclusions. An alternative which might have allowed for fewer participants to have some control over the simulated environment variables could produce greater understanding of the S-O-R framework as a potential feedback loop. In the virtual world, participants in the quasi-experiment could adjust the RGB colors to cycle through the entire spectrum of visible light applied to objects in the hospitality setting. No longer would researchers, guests, or hotel operators settle for “males prefer the masculine color” and “females prefer the feminine color”. Dialing-in (R) hundreds of unique preferences (O) could transform different color schemes (S) into virtual “lines of best fit” to determine one atmospheric measure that is preferred by most males and females (S-O-R-O-S). Virtual and interactive studies focused on architectural design/servicescapes have the ability to go beyond presenting a stimulus and asking if participants like it. They can invite participants to virtually paint the walls any color they want, skew the proportions of the room to suit their preference, and add or subtract other features of interest to their heart’s content.

Hotel Lobbies

Biophilic design and participants’ relative emotional responses to plants, water, and light in a hotel lobby were part of an S-O-R anchored study by Lee (2019). Methods included using photographs from Google Images that were agreed upon by judges as representing upper mid-scale hotel lobbies. The photos contained either plants, water, or natural light. A fourth image category consisting of none of the previously mentioned biophilic elements was used as a control. The results from a 7-point Likert scale measuring pleasure/displeasure with each image

would suggest operationalizing natural light in hotel lobbies over the other possible design emphases on plants and water, each measured with decreased preference respectively.

While light may be overwhelmingly recognized as essential to our experience of the visual world (without light we cannot see anything), it is less clear that this study truly measured its significance as an atmospheric element of biophilia in the hotel servicescape. Similar to the challenge of defining (and controlling the variables) associated with terms like “contemporary” and “traditional”, natural light and its characteristics as it is filtered through architectural design comes with nearly infinite possibilities. Design efforts to utilize natural light, plants, water, and other elements are not all equal. Dawn, mid-day, and dusk produce drastically different lighting conditions. Direct and diffuse lighting have different effects on viewers. The intensity, color, and contrast with constructed elements also change perceptions of natural light. Design with plants can also be understood as having a hierarchy. To have a single potted plant in a lobby may be an example of considering biophilia in design, but having a living green-wall of assorted native plant species arranged in patterns that reinforce the room’s architectural motifs will likely elicit greater emotional response. Water is similarly problematic. It can be integrated through limitless design scenarios. Its characteristics also point to a critical flaw requiring future researchers to consider alternative approaches to evaluating responses to biophilic design (and frankly all forms of design).

Photographs are static two-dimensional images, while architectural design is meant to be experienced through space and time. Biophilic elements also include a fundamental connection to living characteristics. A photograph does not capture the sound of flowing water, splashing fountains, or the rustle of leaves. It does not convey the movement of droplets or the changing form of a floral arrangement as one walks around it. A quasi experiment that cannot transmit the

warmth of sunlight, the coolness of air running across water, or the shade of a tree canopy complicates the supposed internal validity of the stimuli and external validity of the participants' feedback. Photography is based on light-sensitive materials reacting to exposure to light, so it may not come as a surprise that natural light emerged as the “winner” in this study, and it prompts the question “What is an alternative approach?”.

If a 2D image must be used, consider translating the design effect of natural light, plants, and water on a two-dimensional surface. The light and shadow play on a flat wall could be captured in a series of photographs focused on natural light. Images of water or plants can be used as a large graphic on a building surface such that they are not merely an accessory in a space but that they define or characterize an entire room's aesthetic. Studies have shown that carefully composed images of nature can have similar effects to being in nature (Joye, 2007).

Finally, the most recent example of the S-O-R framework studied hotel booking intentions in response to two sets of photographs of two hotel lobby designs; one photo that did not contain plants and one manipulated photo with plants. The two schemes include one “contemporary” in its design and the other was “outdated” (Nanu et al., 2020). Previous comments on the intricacies and infinite possibilities of adding plants (or any design element) are applicable in a critique of this article. It was noted in the methods sections that,

“Both images were subjected to photo editing to induce biophilic elements in the photographs. Such elements were added consistently to the images of the lobbies with two different design styles to create a wall with biophilic elements in both of the spaces and control the amount and type of greenery brought into the pictures.” (p.5)

In conclusion, millennials preferred the modern design (as opposed to the “outdated” lobby).

More on the importance of *language* in design aesthetics to come, the semantics used to describe

the stimuli in this study suggested the outcome from the outset. More peculiarly, the addition of plants did not impact the emotions of millennials and there was no significant difference between them and non-millennials. Understanding the priorities of professional designers would lead to understanding architectural decisions (Smith et al., 2015). This prompts the question of research designers, who designs the stimuli? Among the authors we see affiliations with the fields of nutrition, dietetics, and hospitality management. It is unclear if anyone trained in interior design, landscape, or architecture were involved with the simulated design of biophilic elements in the hotel lobby but suffice to say an architectural designer could increase the likelihood of an emotive response to creative design in a hospitality setting. Otherwise, the study only provides the insight that “outdated” design is not preferred by millennials.

In what may be considered the ultimate approach to evaluating consumer or employee response to design elements in a hospitality setting, research teams that include licensed design professionals and the opportunity to manipulate real-world built environments can most effectively measure emotional responses to atmospheric stimuli. Such a team is what one might expect to come from new pedagogies in the hospitality classroom (Rippe, n.d.). The opportunity for overlaps between hospitality servicescape research and architectural design research are many. Immersive 3D environments can be created to more accurately simulate navigating through a building or exploring the contents and overall composition of a room. Full-scale mock-ups can recreate a portion of a hospitality environment in a more convenient location. A teaching hotel that is treated as a laboratory to implement design ideas and test their effects on guests could easily operationalize versions of plants as stimuli in a hotel lobby as seen in the study by Nanu et al. (2020). It may also be ideal to work in collaboration with the design teams of existing hotels. To have the ability to implement different colors or furnishings as noted in the

study by Bogeciv et al. (2018) could help overcome the limitations of survey instruments when wanting to understand real-life scenarios through a Stimulus-Organism-Response framework. Ultimately, the built environments of the hospitality industry are ripe for the development of more controlled experiments that manipulate the actual servicescapes. Recognizing that when engaged with properly trained research teams, architecture is as malleable as the photographs frequently used for academic research. In hotels that have hundreds or thousands of rooms, variations among them can transform a property into a major generator of research data. The same can be true of overall building design when considering the variables and constants found throughout hotel chains.

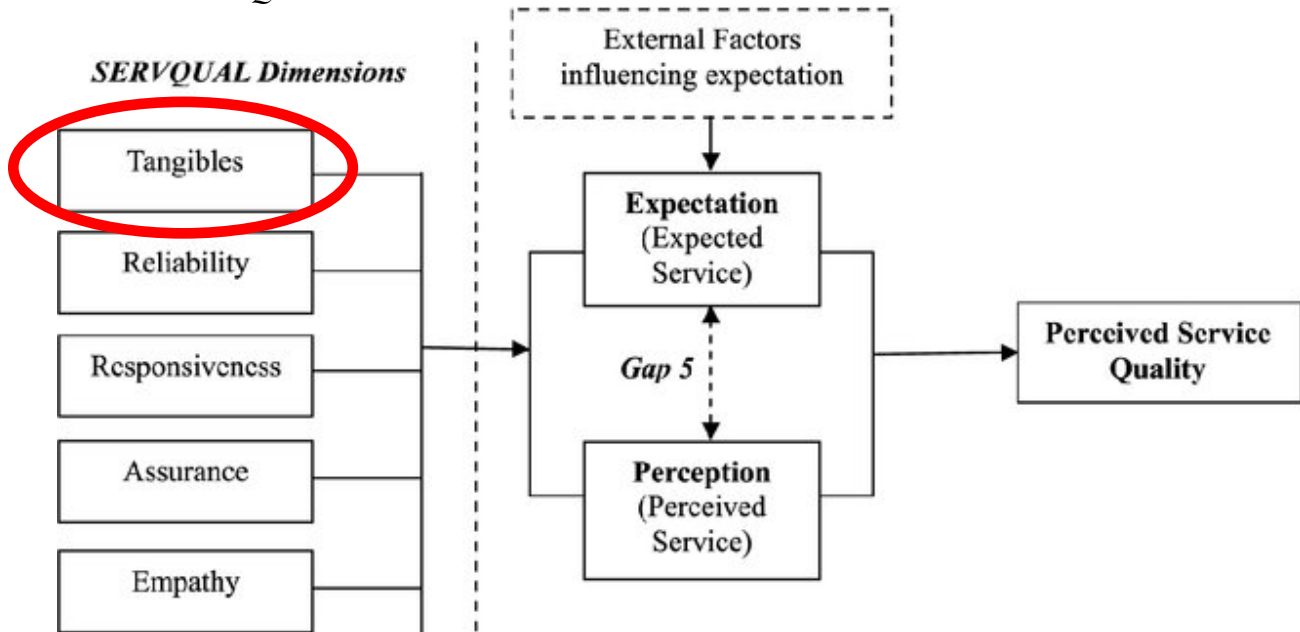
SERVQUAL Dimensions and Hospitality Design Aesthetics

Today, SERVQUAL commonly includes five dimensions that are part of a research instrument to capture consumer perceptions and expectations of service quality. The five dimensions include reliability, responsiveness, assurance, empathy, and tangibles. When first published by Parasuraman, Zeithami, and Berry, there were 10 determinants of service quality: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibles (1985). Through years of refinement, dimensions such as competence and communication have been revised to “assurance” (Parasuraman et al., 1991). Others (courtesy, understanding, knowing the customer) have been combined and reworded to arrive at “empathy”.

Service is primarily comprised of intangible exchanges, and measures of quality are largely relative and/or subjective. Therefore, it can be difficult to describe the relationship between hotel design and SERVQUAL. However, Pizam (2020) introduced a theory of hospitality as a governing principle for healthcare organizations. In the conceptual model (Fig.

5), hospitality organizational culture was defined through five dimensions similar to those of SERVQUAL: patient-clinician interactions, patient-support staff interactions, workplace climate, external stakeholder relations, and facility atmospherics (ambience).

Figure 5
The Five SERVQUAL Dimensions



Note. Reproduced from Pizam, 2020

Both SERVQUAL and Pizam’s Hospitality Organizational Culture (HOC) include five dimensions (Fig. 6) focused primarily on intangible qualities of consumer (and service provider) experiences. SERVQUAL and HOC include as their fifth dimension/determinant a similarly described physical construct: “tangibles” and “facility/atmospherics (ambience)” respectively. Because these tangibles/servicescapes may be understood as a determinant for all of the other dimensions of SERVQUAL, and because health concerns can be described through the other

dimensions, the architecture of casinos can be seen as an overarching force that sets the stage for addressing wellness.

To elaborate on the relationship between casino architecture and SERVQUAL dimensions addressing health and wellness, a look at the other dimension reveals how tangibles/servicescapes or architecture may be the final precursor to empathy, responsiveness, assurance, and reliability. The appearance of the physical facility can show care and attention to the customer (empathy). The servicescape can demonstrate a willingness to help customers (responsiveness). The design of the physical facility can convey trust toward guests that want to know health and wellness is adequately addressed (assurance). The architecture can perform dependably and accurately such that it responsibly entertains the majority of guests while potentially deterring unhealthy behaviors (reliability).

Table 2
Summary of SERVQUAL Items

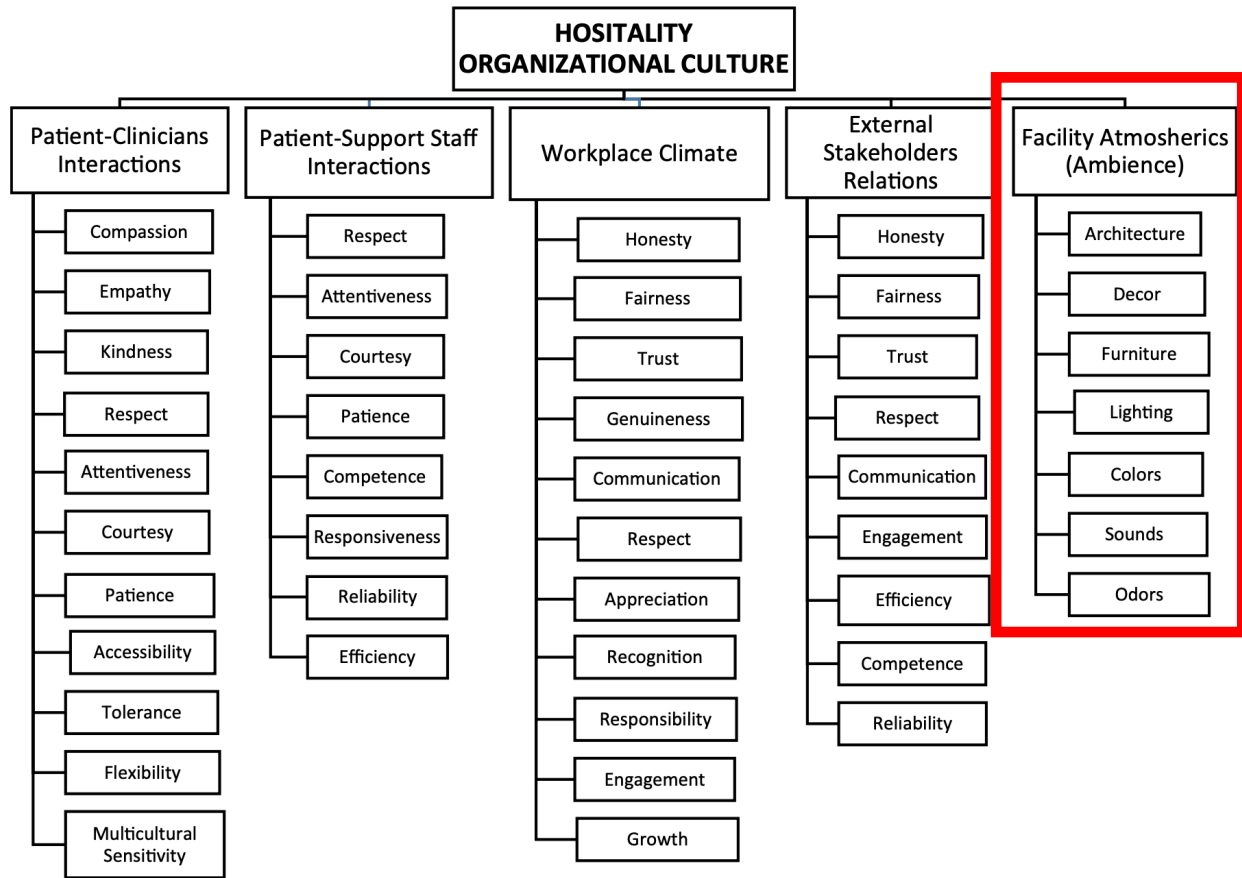
Dimension	No. of Items in Questionnaire	Definition
Reliability	5	The ability to perform the promised service dependably and accurately
Assurance	4	The knowledge and courtesy of employees and their ability to convey trust and confidence
Tangibles	4	The appearance of physical facilities, equipment, personnel and communication materials
Empathy	5	The provision of caring, individualizing attention to customer
Responsiveness	4	The willingness to help customers and to provide prompt service

Note. Reproduced from Pizam, 2020

Hotel design impacts everything about hospitality operations and guest experience. Servicescapes have the ability to bring customers and employees together or pull them apart. They can facilitate a better product or inhibit service. The architectural aesthetics (i.e. ambience, atmospherics) set the stage for our perceptions of an experience and prime our subconscious to engage these other dimensions of SERVQUAL to varying degrees of effectiveness: attentiveness, appreciation, compassion, empathy, engagement, honesty, kindness, patience, recognition, respect, tolerance, trust, and more.

Architecture is a blend of art and science. From iconic large-scale design like the Marina Bay Sands to subtle design cues in motel guest rooms, architecture facilitates practical functions and ignites passion for being in a particular place... existing at a particular time. It is a kind of language that has evolved throughout human history in response to different physical determinants: tools and methods, materials, building functions, site characteristics, climatic conditions. Non-physical determinants have also influenced architectural languages: budget, communication, symbolism, abstraction. Until more precise and consistent language is used across the fields of both architecture and hospitality research, the relationships between hotel aesthetics and SERVQUAL will likely remain only vaguely understood from a theoretical perspective or vaguely addressed from a practical standpoint.

Figure 6
The Five Dimensions of Hospitality Organizational Culture in a Healthcare Setting



Note. Reproduced from Pizam, 2020, p. 433

The majority of studies seen in the literature review focus on single research methods: namely SERVQUAL surveys or S-O-R experiments. We expect to build upon findings by combining these research methods and more in this mixed-method study.

Architectural Policy Literature

The design of all buildings, casino servicescapes included, is informed by policies. An examination of gaming policy literature aims to uncover the intentions of policies affecting the built environment and their actual effect on architecture. A review may also reveal meaningful gaming policies that are not directed at casino servicescape that could be enhanced if they were

expanded to include language focused on architectural design. This section is primarily in support of the proposed interviews with casino resort architects. Professionals familiar with building policies, rules, and regulations will be well-positioned to envision how new conceptions of casino servicescape or new interpretations of gaming policies could inform one another.

Government policies are often informed by neutral, nonpartisan consultants (Rich 2004). Universities, nonprofit organizations, or think-tanks help shape the development of the hospitality and gaming industry from energy consumption and water usage to development policies and zoning. When looking for policies that have more meaningful impacts on the architectural designs of the hospitality and gaming industry, we find a gap where the interdisciplinarity of the policy research teams could include architects or other experts focused on the built environments of some of the world's largest construction projects. While university-industry partnerships are responsible for a lot of research and development (Berbegal-Mirabent, 2015), limitations around those R&D contracts suggest that nonprofits closely connected to universities may be better positioned to work with private industry and liaise with policymakers. The Nevada nonprofit sector plays an important role in the state's economy, yet the presence and impact of statewide nonprofit organizations is far below the national average (Word, et. al, 2014). Nevada no longer has a nonprofit design center and UNLV (the only institution in the state with an accredited architecture program) no longer has a community design program (previously the Downtown Design Center). The literature review, as a whole, draws attention to this gap at local and global scales while alluding to the importance of maintaining an entity with a neutral voice in design research, neither a private practice nor a governmental agency.

Historical Context

Gambling may be the most consistent fund-raiser for governments across the globe, second only to taxation (Bernhard et al., 2009). The relationship between government and public policy on hospitality and gaming is centuries old. It is said that gambling is one of the earliest forms of economic exchange (along with prostitution) providing deep roots for Las Vegas' nickname of "Sin City", a global gaming destination that didn't exist until millennia after gambling was invented. When the world was largely governed by religious creeds as opposed to democratic governments, policies geared toward hospitality and gaming were often interpretations of divine scriptures. The deviant behaviors associated with gambling were not governed but largely banished (Bernhard, 2007). Activities that did not align with the indoctrinations were cast out far from the civic center. In the middle of many cities throughout the world, some of the most awe-inspiring (and expensive) architecture throughout human history was constructed: churches, temples, mosques. They were built with cutting edge technology that mirrored the scientific advances of their day (e.g. masonry, flying buttresses, reinforced concrete). Their cardinal orientations reflected growing understanding of the cosmos with morning and evening light orchestrated to exact phenomenological experiences on patrons making their pilgrimage to these palaces for the people. Cathedrals and other religious structures represented the epitome of cultures, and casinos were quite literally pushed underground.

Las Vegas of the early 1900's echoed the sentiments of early settlers moving west in search of greater independence and the American Dream (Richard, 2018; Schwartz, 2006). Local and state governments applied laissez-faire policies surrounding gaming, and the city started attracting travelers between Salt Lake City and Los Angeles among others to stay a little while. The "wide open gambling bill" of 1931 opened the modern era of legalized gambling in

Nevada after several fits and starts as far back as initial statehood and even a territory (Clayton, 2006). The potential of the gaming industry was proven with the profitability of the earliest properties, but just as tourists were excited to be allowed to partake in the activities offered in this oasis in the desert, there was growing concern over safety and other implications of the industry. Without any oversight and few policies in place, unfettered growth and crime came hand-in-hand.

The Keifauver Hearings of the 1950's identified organized crime throughout the country and mob-run hotel casinos up and down Las Vegas Boulevard (Woodiwess, 1987). The evolution of public perception had gone from not wanting any form of gaming, to inviting unregulated gaming, to ultimately recognizing that if (hospitality) and gaming were to continue then the government would need to organize public policies for their development. By 1955 the Nevada Gaming Control Board was established to "eliminate the undesirable elements in Nevada gaming and to provide regulations for the licensing and the operation of gaming" (Nevada Legislature). Since then, the board and the resulting industry seen in Las Vegas have served as examples to jurisdictions around the world on how to effectively govern hospitality/gaming operations.

Forward Progress

The uniqueness of Las Vegas to the question of land use and design, is that the city's founding essentially coincided with the legalization of gaming. The development of Fremont Street and The Strip emerged as concretizations of the values of the transient cultures coming together in the American West. No longer was the church a central figure in the city skyline. Steve Wynn noted that "casinos are the cathedrals of our time" (Anderton, 1999). However, in the vast majority of cities, states, and countries around the world that have more recently legalized gaming and are looking to develop major hospitality and gaming industries, their built

environment is not a tabula rasa, and their people may not share the same cultures as those that led to the creation of Las Vegas. Thus, we see amalgamations of modern development with historic beliefs.

Hospitality and gaming development has increased extensively in the last couple decades. Years ago, it seemed one could only gamble in Las Vegas, Atlantic City, or a few other small towns in Nevada and New Jersey. Now, you can find casinos in every state except Utah and Hawaii. The United States Supreme Court's decision to overturn PAPA in 2018 opened opportunities for sports betting in states outside of Nevada (Harris, 2018). We have since seen the development of sportsbooks in dozens of states with many calling on the design expertise of hospitality firms based in Las Vegas. Countries on every continent around the world are opening up to gaming. Even some of the most conservative (religious) have populations with their complementary governments recognizing the economic impacts (i.e. opportunities) of the hospitality industry. Governments in each jurisdiction then shape public policy to inform what its stakeholders might recognize as appropriate land use and design. Even in US cities with new hospitality development, we see Protestant values superimposed on related public policies.

In Encore Boston Harbor, owned by Wynn Resorts, the 2019 property plays a trick with its name. It is not in Boston but rather Everett Massachusetts. It is located over five miles from the downtown of its namesake, and it occupies a 33-acre plot of land adjacent to railroad tracks on an abandoned industrial site. Intense protests from local communities and organizations fought its development (Quinn, 2015). As is often the case in any casino development outside of Las Vegas, NIMBYism (Not In My Backyard) creates a series of challenges to overcome in the process of bringing billion-dollar projects to fruition (Ahlfeldt and Maennig, 2012; Litven et al., 2020). From initial feasibility studies to public hearings and lawsuits, policies unique to each

jurisdiction begin to take shape. Greater numbers of NIMBYs are slowly transformed to YIMBYs so long as the proximity cost benefit analysis works for the most vocal (and well-resourced) constituents (Brown and Glanz, 2018). In other words, Wynn Resorts could build their casino resort, but only on that unwanted piece of land if they promise to develop some nice sidewalks, ease traffic congestion, and create a ton of jobs. Unlike Wynn and Encore Las Vegas being quite literally central to the Las Vegas valley and having the prominence of a cathedral, Encore Boston Harbor is more akin to being cast out of the temple.

The proposed 2013 Market 8 casino hotel in Philadelphia, Pennsylvania listened to local concerns about the unintended consequences of gaming and transformed the traditional Vegas model of integrated resorts into one that fit the Birthplace of America's desire to walk down the street and not see any sign of gaming. By having an entry sequence that takes pedestrians on an elevator ride to the second (and third) floor casino space, the design responded to policy driven by traditions established before gaming was legalized in the state.

Harrah's Casino New Orleans of 1999 includes at least two major lessons on hospitality development related to public policy and government. The Rivergate Convention Center in downtown New Orleans was closed in the early 90s. With the loss of several jobs associated with the convention industry and the decline of business travelers, the possibility of renovating the brown-field site into something that would attract out-of-state tourists and tax dollars led to requests for proposals for a casino. Zoning and development policies can have the tendency to shift when economic impact is desired by a community. Analysis of the neighboring states' gaming laws and perceived willingness to travel, Louisiana began making calculated decisions on where and how to develop a major hospitality project. While there were still concerns of such things as problem gambling and associated crime, the city of New Orleans was willing to change

its policy on gaming development. It eventually even allowed a Harrah's hotel to be built adjacent to the casino.

New York, Chicago, and other global cities are examining development opportunities around hospitality (Curran, 2022). Each acknowledges that there are concerns around the proliferation of gaming properties and recognizes that the policies to exclude (push to the perimeter) or imitate (copy Las Vegas) will likely limit the desirable impacts of the projects. Therefore, as human sensibilities evolve, governments progress, and policies reflect empirical evidence of hospitality design over the past one hundred years or so and data from academic studies spanning only the last several decades, larger environmental concerns may begin to play a bigger part in the overlaps between government and hospitality.

Not only does the hospitality industry have the budgets to take the undesirable and contaminated lands (in the desert or on the outskirts of town) and transform them into usable sites, but they also have the intellectual capital to design them into such amazing experiences that guests remember their time there and want to go back. Problem gaming is not an existential crisis, but climate change is. Future policies that do more than designate land use (e.g. entertainment districts) or specify percentage of square footage per programmatic zone (e.g. casino shall occupy no more than 10% total project area), may begin to impact energy and water use in such profound ways that hospitality projects change people's attitudes toward the environment in the same way the industry has uplifted spirits and connected to people around the world through the new experience economy.

This is why policies need to be increasingly informed by more than elected or appointed government officials. Climate scientists, sociologists, and design professionals among others have important roles to play. The role of hospitality researchers with expertise in architectural

development can be one that shapes new proposals for action. Moshe Safdie, the architect of the Marina Bay Sands, is an excellent example of the potentials of developing the gaming industry in ways that take a model from Las Vegas, Nevada and adapt it to meet the needs of different communities around the world (Safdie, 2011). Others in the private sector working to execute client visions of opening the next billion-dollar development may tend to seek the path of least resistance. Governmental agencies may look to past precedent but fail to envision disruptive innovations stemming from any new policies. A nonprofit architectural research center or design collaborative in a public-private partnership could aim to shape policies that capitalize on the greatest intentions of both the hospitality developers and the communities they work with around the globe. Symbols of innovation, commitment to sustainability or even environmental regeneration, equity and inclusion are among the topics like problem gambling that can be addressed through architectural design.

Gaming Policy's Impact on the Architectural Design of Integrated Resorts

From a rather organic genesis of form in a culture centered on gaming to the “exportation” of best practices in megaresort development seen in Las Vegas to other parts of the world can be neatly examined by focusing on the few areas of the world that resemble Las Vegas: Singapore or Macau to name a few. It can also be examined with attention to the parts of the world that do not yet have integrated resorts but have been trying to get one for several years: some of the United States other large cities, Brazil, Greece, Japan, and many more. The conflicts and complications of proposed but never built integrated resorts was the topic of a book by gaming experts (Eadington and Doyle, 2009). In trying to figure out why some IRs fail, the book includes the sociological, economical, and regulatory perspectives among others, but no

architectural analysis. Looking for ways to better inform hospitality design decisions is a thread woven through this section of the literature review.

Las Vegas

Gaming policy, similar to public policy in the previous question, is a reflection of people's principles seen in proposed or adopted courses of action (Gerston, 2021). In an industry that grew rapidly in the middle of the Mojave Desert without much oversight prior to the 1950's, the people developing initial policies (first frontiersman and later mobsters) were governed by their own intuition more than any set of rules and regulations (Schwartz, 2006). The following attempts to explain how gaming grew (pragmatically, organically, and increasingly theoretically) from card rooms in the back of saloons to the design of integrated resorts we see today.

Initial [gaming] policies were driven by profitability. Bars of the 1920's in downtown Las Vegas near the train station and the seedier block 16 found that their back rooms could make more money if moved to the "front of house". Gambling halls emerged with multiple table games and eventually slot machines. Hotel rooms would accommodate larger numbers of people coming from greater distances and entice people to stay longer. Security was addressed in ways not too dissimilar from preconceived notions of the wild west.

The architectural evolution of resort architecture is well-documented in Stefan Al's graphic documentation of Strip properties' plans, sections, and elevations (2017). Through the mob-era of the 1930s, 40s, and 50s, the design of resorts provided a façade that sought to match the personas of American tourists coming from California, the East Coast, and everywhere in between. While resorts were open 24 hours per day, nobody could spend that much time in a casino. Swimming pools provided entertainment by day. Restaurants would keep guests on property for each meal. The neon lights and the classic signs were designed to appeal to

motorists. Showrooms and world-class entertainment like the Rat Pack brought a note of levity to the risk and rewards associated with the high stakes of gaming. Mobsters protected their assets through slightly more sophisticated means. Cashier cages and catwalks over the gaming tables (for surveillance purposes) helped to ensure consistent operations. These design measures, however, did not keep their gaming business consistent with federal policies beyond the gaming world.

The design trajectory established in those early years of Las Vegas launched like a rocket when corporate investment came in the 1960s. A building program nearly identical to the one of the previous decade was the norm but the scale would increase exponentially. Howard Hughes bought the Desert Inn, The Frontier, Sands, and more signaling to other investors that Las Vegas could in fact be a safe bet. In 1969, Kirk Kerkorian built the International Hotel (current Westgate) just off the Strip (the world's largest hotel at the time). Outdoing the 400-person capacity of the Copa Room at the Sands, the 1,600-seat theatre at the International served as the home stage of Elvis Presley. It later added the world's largest sports book. Then, with the design and construction of The MGM Grand (current Bally's) the largest hotel on the Strip was built. One-upping its mob-era neighbor The Flamingo, The MGM had the world's largest casino, the finest dining, and retail. The resorts of this era began to function more like small cities in and of themselves. Thus, when tragedy struck and deadly fires ravaged both the MGM Grand and The International within months of each other in the early 1980s, design policies that sought to address the safety of tourists in Las Vegas had global implications for the architecture of high-rise buildings.

The improvement of building codes and ASME Standards (Klote, 2015) following the 1980-81 fires may constitute the first major "exportation" of best practices in architectural design

from Las Vegas (Buerk, et. al 1982). It is also worth noting that the “best” practice was not known until after the previous practice failed. Further, upon future discoveries of failures or even shortcomings, current best-practices may be superseded by better “best” practices.

Building codes are reviewed every few years and typically new code proposals take several cycles to become adopted. Architects take an oath to uphold the public’s health, safety, and welfare (HSW) through their designs, and as these have taken on renewed interest in the age of COVID-19 (particularly as it relates to indoor occupancies), it is anticipated that the hospitality industry or Las Vegas, specifically, may once again find itself at the forefront of determining “better” practices and policies.

Jay Sarno may have envisioned the first “megaresort” with Caesars Palace, which arguably gave rise to the proliferation of themed resorts in Las Vegas. Each property trying to top the previous... taller, more rooms, larger suites, most extravagant lobby, the finest casino. The first megaresort, though, might not have been truly invented until Steve Wynn developed The Mirage. There, it was not only the execution of an architectural theme and a collection of all the various building programs, which had grown to include massive meeting, convention, and events space, but an understanding that the built environment provided the essential backdrop to all business operations including the interpersonal relations on which the hospitality industry is built. Throughout the 1990s, the industry grew rapidly, and casino development spread from Nevada to urban and suburban areas across the country and around the world (Eadington, 1999).

As gaming expanded, the architectural expertise associated with resorts grew the list of design exports from Las Vegas from Cirque-style showrooms to urban spectacles (Gottdiener et. al, 1999; Woolfe, 2012).

Singapore

Policy diffusion is helpful when thinking about the rapidly changing political landscapes related to gaming in 2000-2015 (Manh, 2017). The theory of policy diffusion notes that neighboring states or countries with similar cultural values will adopt similar policies. If one jurisdiction sees that societal concerns are well-addressed by a certain policy in a nearby place, it will be likely to adopt the same for its city, state, or country. This process for most policies is slow and steady. However, gaming is unique. Policies from the gaming industry in one jurisdiction can directly influence others on the other side of the world and the adoption rates of policies can be much quicker than what is seen with policies on non-gaming issues.

When considering Singapore in the early 2000s and its relation to Las Vegas, the small Southeast Asian city-state had gone from third world to first in a few decades (Yoshihara, 2000), and it wanted to capitalize on its potential as a destination for meetings and events in the Asia-Pacific. Las Vegas had built its economy around hospitality regularly hosting 100,000+ tourists every day in its city with more hotel rooms than New York. Singapore considered several of the Las Vegas “megaresorts” to be precedents for what it hoped to create to capitalize on the MICE industry and become an icon of the country (Koun, 2017). Its challenge, however, was in overcoming stigmas associated with gaming.

Caesars, MGM, Mirage, Bellagio, Wynn, Venetian, and more provided ideal case studies for Singapore to recognize that to simply describe these as “casinos” or even “casino-resorts” was to perhaps give greater weight to the gaming component than is warranted. Traditional slot gaming has been declining for some time, particularly amongst millennials, and many properties are finally considering changes to entertainment offered on the casino floor: skill-based games, eSports, beer-pong (Doocey, 2017). Like beer-pong, “Megaresort” also had an Americanized

nomenclature to it that felt out of place in Singapore, so *integrated resort* sought to characterize the design of the archetype in a way that was more palatable to the Singaporean people.

“Integrated resorts” is a more refined way of saying a Las Vegas-style resort. Packaged in a more worldly title for jurisdictions that do not want to turn into Las Vegas (or do not want the electorate accusing leaders of such ambitions), but would like to learn from Las Vegas, integrated resorts closely align with the building programs seen in modern resorts up and down Las Vegas Boulevard. These programs are the myriad kinds of building occupancies and construction types found in Las Vegas-style resorts, and they are often conceived as proportional to one another: hotel(s), bars, restaurants, shopping center, convention center, performing arts venue, pool, cultural attraction (i.e. fountain, volcano, art exhibition, roller coaster, etc.), and a casino. Thus, it is not “a casino” but the integration of several spaces designed for a wide range of experiences or an “integrated resort”.

The integrated resort may be the second major “exportation” of best practices by Las Vegas. Each of the architectural spaces of an integrated resort have different functions, which impact more than just the form of the building. These particular components of the overall resort have unique material specifications, structural loading requirements, fire separations, required air exchanges, emergency egress routes, and more without any mention of aesthetic consideration. And for every front-of-house space a back-of-house is also designed to ensure the seamless operation of exceeding guest expectations. Design that evolved on the Las Vegas strip by a handful of hospitality design firms is now being exported to places around the world. Each of the following locales and more have their unique story of fighting for and against policies related to gaming and the resultant resort developments: Singapore (Bullock, 2014), Macau, Shanghai, Uruguay (Ramón-Cardona and Sánchez-Fernández, 2022), South Africa (Fu and Murray, 2014),

Australia, United Kingdom, Vietnam, South Korea, Japan (Wiseman 2007), Brazil, Greece, and more.

Beyond reacting to catastrophic failure as seen in the advancements of building codes after the MGM fire of 1980 and recreating the colossal successes of megaresorts coined integrated resorts of the 2000s, the process of exporting best practices in design from the Las Vegas Strip to other locales around the world could be expanded in a crucial third way. Instead of exporting with the assumption that if it works in Las Vegas it will work in _____, more critical analysis of integrated resorts and the subtle relationships between architectural constructs and the cultures in which they are created may elevate Las Vegas from an exporter of the building as an object to the exporter of building as a process with the intellectual capital of Las Vegas more capable of critiquing its built environment to understand what can make its current practices even better.

Policy-focused literature from historic Las Vegas to modern day Singapore and beyond supports the study's goal of interviewing architects and the opportunity to engage in questions pertaining to the design of casino servicescapes in jurisdictions around the world. Progressing from the interview to experimental phase of the mixed-methods study, the following section of the literature review examines emerging trends and innovations such that the study can contextualize casino servicescape in a rapidly evolving industry.

AI and Disruptive Design Thinking in Hospitality Literature

Policies will rarely call for disruption; they often seek simplicity to instill stability (Sharkansy, 2002), but the way they are interpreted could inspire divergent ways of addressing principled intentions. We examine some of the known precedents of adoption and opportunities yet to come.

Known Relationships

We know that disruptive innovation is largely absent from hospitality literature, and that larger sized organizations are typically at a disadvantage in terms of managing innovation (Christensen, 1997). The hospitality industry is highly interdisciplinary, and innovative products or processes predominately emerge out of its allied disciplines of engineering, business, and technology. COVID-19 prompted a lot of disruptive design thinking. Some hotels were adapted to serve as hospitals for cities' overcrowded emergency rooms. Other structures and outdoor spaces in suburban areas were reconceived as triage rooms to mitigate the spread of infectious disease. Hospitality firms in a post-pandemic economy were quick to apply (and promote) innovative technologies that finally had a more tangible benefit to their bottom line. Self-check-in kiosks had been available for over a decade. Debate about automated systems and mobile phone apps' place relative to face-to-face human interactions abound, but social distancing requirements meant these could now play a more pragmatic role. In a study seeking to understand guest perceptions and preferences between high-tech (automated technologies) and high-touch (employee-customer interaction) properties, researchers found that experiences with both were positive through the pandemic, but the automated technologies were not highlighted as much in guests' reviews (Davari et al., 2022).

Keyless and even touchless entries maintained cleaner building surfaces, reducing the spread of germs. Installation of ultraviolet lights and high efficiency particulate air (HEPA) filters similarly turned existing albeit underutilized technology such as a building's heating, ventilation, and air conditioning (HVAC) into selling points for global tourists (Brown, 2021). Hospitality robots deployed for everything from pouring drinks to delivering room service to

housekeeping further cemented the hospitality industry's legacy of implementing innovation primarily when the continuation of its existence depended on it.

The local Las Vegas building codes and eventually international building codes that emerged from the previously mentioned (MGM) fire were not immediately adopted as a best practice in architectural design. The first impulse was to quickly renovate. The goal was to get the property "back to normal" by rebuilding the deli where the fire had originated and hope that most tourists did not remember the 85 lives that were lost throughout the casino and hotel tower. It was only after the Hilton Hotel caught fire only a few months later killing eight more people that the hospitality industry decided something different had to be implemented or else risk losing significant business. This was the implementation of an innovation. It was new to Las Vegas hospitality design, and it had far-reaching implications affecting non-hotel archetypes (e.g. residential apartment buildings and commercial towers) in areas across the country and around the world.

Unknown Relationships

So, what we do not know is whether the race to a return to normalcy in a post-pandemic economy is analogous to "fixing the deli" and hoping people forget about the millions of lives lost to COVID-19. Unlike the inventive implementation of new building codes, many innovations introduced post-pandemic, particularly those in boutique or five-star accommodations, seem more concerned with putting out the fire (or health emergency) than they are with preventing the next one. Six focused research avenues are offered by a panel of experts considering questions stemming from the pandemic (Assaf et al., 2022). The proposed streams are familiar topics with COVID-19 added to the question: COVID-19 impact on consumer behavior, effect of COVID-19 on profitability, forecasting tourist demand amid COVID-19,

hotels seeking to be redesigned during COVID-19, technology and COVID-19, and quality of life and sustainability. Gossling and Schweiggart (2022) critique the difference between what the industry has learned and what the industry should have learned by calling attention to the similarities between COVID and climate change. Beyond these familiar topics, more critical (if not cynical) questions can be broached. To what extent are the innovations adopted by the culture-driven hospitality industry following the global economic shut-down a stopgap for health concerns? More optimism can be found in research that ventures outside the sector silos. In what ways can hospitality firms be at the forefront of research focused on the overlaps between technology, design, and social science?

Hospitality has shown what is possible when pressed to innovate. Potential research subjects focusing on intersections of architectural innovation and cultural transformation can be applicable throughout the vertical sector, and they ought to extend outward from hospitality to inform horizontal markets.

Subjects worthy of research may lie at the periphery of the industry. Projects used as experimental sites to test design theses often align with preconceived notions of hospitality: hotels, casinos, resorts; however, lessons from hospitality can also be applied to and studied in non-hospitality industry archetypes: residential, commercial, industrial, educational, healthcare, etc. The definition of hospitality should be kept intentionally broad with emphasis on architects (or any innovators) being hospitable through design... designing for social justice, designing for environmental regeneration, designing for economic stability, etc.

In the same way that protection from fire or smoke inhalation was not reserved exclusively for guests spending the night in the world's largest resorts, innovative measures employed by the hospitality industry in the past two years could be more widely implemented

across all sectors. Design of higher education buildings in the Southwest is incorporating more open space to connect with nature and wellness (Eshenbaugh, 2022). Access to fresh air, advanced cleaning protocols, or adaptable buildings (e.g. indoor/outdoor spaces) for instance, should not be exclusive offerings to travelers in exotic locations. Examining human behavior in response to smart spaces or artificial intelligences (AI) in the widely systematized built environments (i.e. consistent independent variables) of hotels can have significance beyond the tourism industry. The incentive to innovate in the vertical sector of hospitality is that many of the research streams have the potential to be a disruptive innovation in sectors outside of hospitality. Additionally, we do not know what technologies or disruptive design thinking may bring to casino servicescapes. This section of the literature review is positioned to inform the development of AI in mixed-methods studies.

Several studies have examined whether AI large language models might be capable of replacing human participants in both quantitative and qualitative social science studies (Dillon et. al 2023; Gerosa, et. al 2023; Chiu 2023). With broad recognition of ChatGPT's and MidJourney's abilities to simulate human-like responses and behaviors (Grossman et. al 2023), there are similarly expansive acknowledgements that these are not perfect human substitutes (Hutson, 2023). For some researchers, there is a welcoming of the imperfection of the algorithms resulting in "happy accidents" (Vermillion 2022), but this can also be seen as analogous to the randomness and outliers found in human samples. Yet, it is believed by many that within a few years, AI could be placed into any experiment and be indistinguishable from humans. In the meantime, studies that demonstrate human-AI co-creation (Lyu et. al 2022; Du et. al 2024) provide examples for this research to further investigate opportunities to exploit emerging technologies related to the study of complex subjects.

AI-generated stimuli for the experimental phase of the mixed-methods study are largely informed by the findings in extant literature dedicated to generative AI in research. Where careful attention is paid to combining artificial intelligence with expert human involvement in both written and graphic creative generation, this study draws lessons learned to inform methodologies in the next chapter.

Chapter 3

Methodology

The proposed research design aimed at answering how hospitality design reinforces hospitality administration's research findings or how to transform empirical research into architectural policy requires a multifaceted approach.

Phase One (P1) Content Analysis – Servicescapes

Content analyses of servicescapes and atmospherics research from within the hospitality literature along with a comparative analysis to analogous elements of architectural design as defined within the field of architecture establishes a taxonomy for translating between the two fields of architecture and hospitality administration. The documents studied are seen as a collection of symbols/text communicating layers of meaning/values (Berg, 2001). These lead to a better understanding of the nature of the “uncontrollable” variables in the servicescape literature. Two complementary studies introduced in this dissertation will examine modes of translating between hospitality research and architectural research.

First, an analysis of the origins and organizing structure of servicescape elements in hospitality literature is conducted. SERVQUAL and its five dimensions, the 10 determinants of service quality according to Parasuraman et. al (1991), Bitner's 6 environmental dimensions in her framework for understanding environment-user relationships in service organizations (fig x) (1992), the 49 items related to aspects of the physical environment of a Las Vegas Hotel Casino (Lucas, 2012), and the five (or four) dimensions of a hospitality organizational culture (Pizam, 2020) provide a basis for understanding servicescape from the perspective of hospitality researchers. The three attributes of architecture according to first century Roman architect, engineer, and author, Vitruvius (30-20 BCE), along with modernist architect Le Corbusier's Five

Points of Architecture (1923), Ruskin's 7 Lamps of Architecture (1849), and The Four Books of Architecture (Palladio, 1570) represent a foundational approach to the taxonomy of architecture within ancient culture and more modern interpretations of the discipline. A comparative analysis of these bodies of literature set the stage for translation between the disciplines of hospitality administration and architecture/hospitality design.

Second, a content analysis of integrated resort RFP documents provides a more direct view into how the language derived from the hospitality/tourism discipline to describe hospitality servicescape is actualized by design professionals into architectural space. The real-world case studies of four requests for proposals from four different integrated resorts (Singapore's existing Marina Bay and Sentosa IR, and Japan's and New York City's future IR) aim to identify how the RFP signals important needs and wants... how public concerns, policy, and design are or are not entwined.

Requests for proposals can be very complicated, and when they are written for one of the most complex building typologies on the planet, they can be quite daunting. To assist in the evaluation of this research's worth, the following hopes to establish trustworthiness amongst readers (Lincoln and Guba, 1985). Confidence in the credibility of the findings can be supported by the fact that the researcher is a licensed architect in Nevada with experience reading and responding to RFPs for similar large-scale hospitality projects and is governed by well-established qualitative research methodologies for the social sciences and applied fields such as regional planning (Marshall & Rossman, 2016). A single document is unlikely to shed light on a phenomenon, but the triangulation of the several documents helps support a well-developed study. Transferability can be seen in the fact that future IR development is still being proposed in places around the world (South America, Africa, Asia, etc.). Even if no integrated resorts are

built for several years, countless other large projects will be issuing RFPs; these other contexts may see findings from this study as applicable to their own. Dependability is upheld by using guidelines for RFPs provided by external researchers (Rubinstein, 2019). The confirmability (or degree of neutrality) can be shaped by theory/perspective triangulation. While this triangulated method was not developed, here, readers are encouraged to examine the documents from perspectives that might have been overlooked by the researcher. Perhaps there are subtle cultural differences embedded in the documents or there are issues related to the order of magnitude these integrated resorts represent (e.g. the IR in Japan is expected to be nearly twice as expensive as the Marina Bay Sands). Thus, the question this analysis seeks to answer is, “Do requests for proposals for integrated resorts express everything they should or could about the design of the casino space when major concerns about problem gambling are a part of the challenge of bringing these servicescapes to fruition?”

The documents collected for this analysis were chosen for their relevance to the research question in three important ways. First, they each include language from official government documents pertaining to the regulations surrounding the process of developing design proposals for integrated resorts. Second, the documents come from countries that have expressed concern about problem gambling; an issue that is communicated through the documents. Finally, the four documents represent relatively recent or ongoing requests for proposals. They help paint a picture of modern practices surrounding the multi-billion-dollar endeavor of building an IR and current strategies employed to address addictive behavior.

The two requests for proposals for the integrated resorts in Singapore (Marina Bay and Sentosa) are available through the Singaporean government’s archives (2005 and 2006, respectively). The RFP for the integrated resort in Japan is still in development. The RFP

process was to begin at various times prior to this writing, but due to concerns of problem gambling and COVID-19, the process has been delayed. Yogonet Gaming News reports on official Japanese government regulations related to casino gambling, and the analyzed document contains direct quotes from Prime Minister Shinzo Abe on the topic of IR development. The New York State Gaming Facility Location Board's Request for Applications to Develop and Operate a Gaming Facility in New York State may be the timeliest document used in this phase of the study. Resort proposals are being submitted from global gaming companies during the writing of the final chapter of this dissertation (Brown, 2024; Scimia, 2024; Stutz, 2023)

These documents are particularly useful in gaining a better understanding of how requests for proposals communicate what is wanted in the design of integrated resorts. In three requests, the national government is soliciting proposals from IR developers. Through innumerable meetings, memos, and legislation leading up to these RFPs, similar themes emerged for all three integrated resorts in relationship to their host country: the integrated resort is envisioned as “world-class”, it aims to bring foreign investments to their economy, and problem gambling concerns are to be addressed. In the case of the two integrated resorts in Singapore, there is the added benefit of seeing how the winning proposals delivered an architectural response to the RFP. With the ongoing developments in Japan, it will be interesting to see how the process evolves and ultimately how the future IR will translate the needs and wants expressed in the RFP into an actual resort comprised of thousands of hotel rooms, casino, restaurants, bars, retail, entertainment, convention space, and more. The time, cost, and complexities associated with such large-scale developments are among the reasons why previous studies have noted difficulty in research focused on variables within the built environment/servicescape and their impact on human behavior (Bitner, 1992; Bogicevic et al., 2018). Thus, comparing the limited amounts of

language used across multiple RFPs is seen as a way to understand how the request for proposals yields both complexity and consistency in the casino servicescapes. An analogous process will be examined in Phase 4 of the research, illustrating the importance of language prompts and the generation of visual design cues. The RFP can be as passive, prescriptive, and/or progressive as its authors want.

Qualitative research on integrated resort requests for proposals (RFPs) involves systematically categorizing and analyzing textual information to identify patterns, themes, and insights related to how language influences architectural outcomes. A complete reading the RFP documents multiple times to gain a comprehensive understanding of the content, context, and objectives outlined by the issuing organization will commence the analysis followed by these methods:

Data Preparation

Transcribe or digitize all relevant RFP documents, including project descriptions, design requirements, evaluation criteria, and any additional communication related to the RFP process. Take note of recurring terms, phrases, and key concepts related to architectural design, development goals, stakeholder expectations, and project constraints. Organize the data into manageable units, such as paragraphs, sections, or specific language excerpts, depending on the scope of the analysis.

Open Coding

Begin the coding process by identifying and labeling meaningful segments of text that capture key themes, ideas, or issues relevant to the research objectives. Generate descriptive codes that succinctly summarize the content and context of each coded segment. Remain flexible

and open to new insights as the data is explored, allowing emergent themes to guide the coding process.

Axial Coding

Group related codes together and organize them into broader categories or themes based on their conceptual similarities and connections. Look for relationships, patterns, and associations between codes to uncover underlying trends, priorities, and tensions within the RFP documents. Use visual tools such as concept maps or matrices to visualize the relationships between codes and themes, facilitating deeper analysis and interpretation.

Selective Coding:

Refine and condense the coding framework by selecting the most salient and representative codes that best capture the essence of the data. Prioritize codes that directly relate to the research questions and objectives, while considering the richness and depth of the insights they provide.

Phase Two (P2) Survey – Casino Guest Sentiment Analysis

While several casinos have adopted LEED (Leadership in Energy and Environmental Design) to address concerns of environmental sustainability, none seem to have integrated principles found in programs like the WELL Building Standard which focus on the physical and mental well-being of building occupants. This mixed-methods study examines guest sentiments toward hypothetical casino features and then questions expert architects on how community concerns can be addressed through real-world servicescape design. A survey of 391 casino guests reveals overwhelming support from participants with and without gambling addictions for design guidelines aimed at sustaining positive mental health in casinos. Architects with casino

resort design experience then discuss the practical and theoretical challenges and opportunities of implementing such design goals.

A survey instrument of thirty-two (32) Likert scale questions was developed by adopting questions used in relevant research literature (Lucas, 2010). Questions focused on casino servicescape, feelings within the space, and willingness to have design guidelines/regulations impacting the architectural design of the casino along with demographic and visitation frequency. The survey was administered through a nation-wide Qualtrics consumer panel and had a sample size of 391. It screened for participants with a minimum age of 21 that had been guests of a casino in the past 18 months. Out of 615 attempts, 391 responses qualified for inclusion in the analysis. Factor, component, and cluster analyses were used to group respondents with the design features they were happy to see regulated or not regulated for mental health benefits.

First, factor analysis was used for data summarization. Precedent studies examining slot servicescape used 49 scale items to measure model variables (Lucas, 2010). While this large number was informed by the literature, servicescape variables addressing elements that architects would not have control over were removed. These include things like employee service quality, staff attire, inter-customer relations, and cleanliness. Thus, the 49 servicescape items were reduced to 16. Similarly, the 22 items focusing on environmental psychology in a seminal study of casino servicescape and gambling behavior (Ho, et. al, 2019) were reduced to 10 based on their relationship to the role of the architect in designing the gaming space.

R-type analysis was used as the research is primarily focused on the variables of the servicescape. The minimum sample size of 5 observations per variable and the preferable 10 per variable were exceeded. When examining sixteen variables simultaneously, the sample size

provides over twenty observations per variable. The Kaiser-Meyer-Olkin (KMO), measure of sampling adequacy equaled .918 when analyzing 16 variables and 10 to 2 factors. The KMO was .791 when analyzing 10 variables and 4 factors. The Bartlett's test of sphericity yielded a significance $< .001$. Therefore, sufficient correlations existed to proceed.

Component analysis was used because data reduction is a primary concern. Scree plots and component matrices revealed the 16 variables focused on servicescapes could be grouped into two factors (Fig. X-X). Layout, room proportions, connection to outdoors, fixtures, lines of sight/views, etc. could be reduced to "physical factors". Sound, light, smell, and other ephemeral qualities were reduced to atmospheric factors. The ten variables addressing environmental psychology within casino spaces could also be reduced to two factors (Fig. X-X). The first factor, "self-awareness" within the space was made up of variables such as individuals that acknowledged they were problem gamblers or suspected they might have problem gambling tendencies. Self-awareness also included individuals that recognized the space made them feel different from other places; specifically, feelings of confidence and control within the casino space. Second, the factor of "empathic awareness" was made up of variables such as problem gambling family members, problem gambling friends, or the recognition that the servicescape could compel different people to behavior very differently within the casino space.

Next, cluster analysis (Q-analysis) was used to better understand how people within the sample could be grouped. With the objective of grouping people based on the similarities of characteristics they possess and differentiating each group from the next, a few key variables were chosen based on the conceptual underpinnings of the factor analysis: agreement with achieving health and wellness through design regulations, whether the individual has problem gambling tendencies, and whether the individual has friends or family with problem gambling

tendencies. The sample size was deemed sufficient representativeness of the casino guest population based on a review of the literature. The measures were all standardized, and the Likert Scale ensures there were no outliers in the data.

Most clusters were formed by people agreeing design regulations should target health and wellness in casino servicescapes. Groups that shared agreement for design regulations differed in their relationship to problem gambling. Some had strong concerns for problem gambling within themselves, friends, or family. Others had mild to no concerns of problem gambling amongst themselves, friends, or family. While clusters of people that somewhat agree, agree, and strongly agree with design regulations had upwards of one-hundred people in them, they could each be broken into smaller clusters with several dozen members in one having problem gambling tendencies and members in another claiming none. Still, these clusters were seen as supportive of design regulations aimed at promoting mental health and wellness within the casino space. This cluster pattern was the same for people that had family or friends with problem gambling tendencies.

Phase Three (P3) Interviews – Hospitality Architects

The purpose of this phase of the research is to better understand any challenges balancing client needs/wants and end-user well-being in designing the casino servicescape and to identify any opportunities to improve casino servicescape design. This ethnographic arts-informed qualitative study (Eisner, 1991) examines environmental psychology through the stimulus-organism-response theory (Arnould, Price, & Tierney, 1998; Aubert-Gamet, 1997), informing semi-structured interviews. A semi-structured interview with architects having experience in hospitality/casino servicescape design is then conducted as a means to further contextualize the hospitality research above with its potential architectural application. To maximize the quality

and quantity of data about casino servicescape design, this study will use purposeful and snowball samples of architects recruited from the American Institute of Architects (Creswell, 2007; Marshall & Rossman, 2010; Yin, 2003). The study explores the potential moral dilemma(s) associated with casino servicescape design from the perspective of architects or interior designers in the hospitality design industry.

Participants were licensed architects or interior design professionals. Their registration was verified by cross-checking with state board records. Screening also included a review of the participants' portfolios to ensure experience with hospitality architecture, casino servicescape design.

The selected design professionals participated in semi-structured interviews (please see attached in Appendix) in an effort to build knowledge from their shared experiences in architecture (Kvale, 1996). Interviews took approximately forty-five minutes at a time convenient for each subject. The interviews were video recorded through Zoom for verbatim transcription purposes. Additional documentation of architectural projects referenced through the interview process were occasionally requested for observation (ex. If a respondent's answer to a question included reference to a building, then photographs or drawings of the specific area may be integrated for further analysis.) Data analysis methods used for such documents included open, axial, and selective coding (Berg 2001).

Trustworthiness was increased by triangulating multiple sources of data, multiple theoretical perspectives: S-O-R theory, servicescapes, and atmospherics (Aubert-Gamet, 1997; Bitner, 1992; Kotler, 1973), and multiple methods including grounded theory coding, domain analyses, and discourse analyses (Marshall & Rossman, 2006; Strauss & Corbin, 1998; Yin, 2003).

Phase Four (P4) Exploratory Pilot Study – AI Image Generation

Piloting use of architectural images generated with language inputs through artificial intelligence applications as stimuli in an S-O-R-inspired study illustrates how novel applications of AI can address previously noted challenges of experimental design involving analysis of behaviors relative to built environments. Instead of conducting an experiment with human subjects to study various reactions to specific design stimuli, this phase of the study examines the potentials of tapping into AI to simulate ideal instruments in experimental research that would draw upon large language models to mimic some of the most complex cognitive tasks (i.e. creative creation) conducted in the design of casino servicescapes or any architectural space for that matter. Key words and concepts found through analysis of phase one content analyses, results of phase two surveys, and findings from phase three interviews will be used in the selection of the language inputs or prompts. The inclusion of these words and concept phrases will serve as prompts (or (S)timuli) for the AI image generator. Midjourney then references billions of images through a process of machine learning “employing intricate neural networks” akin to tapping into the brain of humanity ((O)rganism), before its generative AI technologies deliver visual responses or (R)esponse).

Drawings, virtual models, renderings, or other visual content representing the complexity of servicescapes can illustrate how different hospitality design may elicit unique responses from study participants and ultimately different responses from guests in real world environments. However, when these have been utilized in previous studies, they inevitably fall short of capturing the seemingly infinite number of variables within built environments or through a process of over-simplifying the visual stimuli they may not replicate the kinds of responses we might see in a more authentic (visual) experience.

Experimental research in a laboratory would be designed in such a way as to control a nearly limitless number of architectural servicescape [independent] variables while allowing for participants to simulate unlimited variability in a dependent variable of the servicescape. However, this level of control is seldom achievable as acknowledgement of the expense of constructing test servicescapes for research purposes has been noted (Bitner, 1992). Even the costs previously associated with generating architectural renderings could be cost prohibitive for most studies. At hundreds or thousands of dollars apiece, this may be why many past studies using simulations limited themselves to fewer than half a dozen visual stimuli (Bogicevic et al., 2018). With artificial intelligence image generators, this phase of the study explores the potentials of novel AI use in methodical conceptual framework for producing affordable, viable experimental stimuli by the dozens, hundreds, or even thousands. The technology can be exploited to better account for the complexity and number of visual stimuli (Lyu et. al 2022; Du et. al 2024).

To further illustrate the potentials of human-AI collaboration in advanced research methods, the following paragraph, apart from bracketed writing, was produced by ChatGPT in response to the informed questions asked by the author. The query or prompt asked for the research procedure for a study using MidJourney instead of human subjects to mimic S-O-R methods. Bracketed text represents thought processes from the human author gauging ethical concerns in research and providing additional information to be considered in the procedure:

Define Research Objectives: Clearly define the objectives of the study, including the specific aspects of image creation you aim to explore and understand using the S-O-R framework. [The specific aspects of architectural image creation are focused on elements of casino servicescapes.] Select Word Prompts: Choose a set of word prompts that are

diverse and can potentially evoke different types of images. These word prompts should cover a range of emotions, concepts, and visual stimuli to elicit varied responses from MidJourney. [The word prompts will be chosen from a list of keywords/concepts found in servicescape/architectural literature.]

Develop Experimental Design: Design the experimental structure, including the sequence of word prompts and the conditions under which MidJourney will receive and respond to these prompts. [The sequence of word prompts will progress from single words to more detailed or complex descriptions of servicescape.] Randomization may be necessary to minimize order effects. [Order effects are primarily a concern when dealing with human subjects. The LLM and image generator are inherently randomized.]

Implementation with MidJourney: Integrate MidJourney into the experimental setup and provide the word prompts in a systematic manner. Ensure that MidJourney's responses are recorded accurately for later analysis.

Data Collection: Collect data on the images generated by MidJourney in response to each word prompt. This may involve capturing screenshots or extracting textual descriptions of the images generated.

Analysis of Responses: Analyze the images created by MidJourney in response to different word prompts. Apply qualitative and quantitative methods to identify patterns, themes, and variations in the images generated.

Interpretation of Results: Interpret the findings within the framework of the S-O-R model, examining how different stimuli (word prompts) influenced the organism (MidJourney) to produce varied responses (images). Consider factors such as context, complexity, and emotional valence in the interpretation. By following these steps, this phase of the research conducts a systematic study using MidJourney to mimic S-O-R methods and investigate image creation in response to word prompts.

Phase Five (P5) Delphi Technique – IR Designers

To aid in reaching consensus on the best practices for casino servicescape design, a panel of experts will participate in a structured communication technique or Delphi method, a panel of experts participate in a structured communication technique or Delphi method. Used in such areas as business forecasting, public health, and research, the Delphi technique is based on the principle that decisions from structured groups deliver more accurate results than unstructured ones. The Delphi technique structured around potential best practices in casino servicescape design is proposed.

The Delphi technique has been used to create guidelines in similar design-focused research. Industry professional stakeholders including architects, interior designers, and environmental psychologists were among the expert panelists of a Delphi method to determine design guidelines for inclusive housing (Zeeman, et al., 2016). Most Delphi studies use between 15 and 20 panelists, while as few as 10 can be sufficient for cases where participants had similar backgrounds (i.e. a narrow fields of expertise) (Carmody, 2012). Another panel consisting of This research utilizes the same techniques of a multi-stage questionnaire to arrive at a consensus. Potential experts identified for participation in this Delphi Technique will hold a unique combination of experiences. First, they will have hospitality design experience in resort architecture. Second, they will have formal education of the WELL Building Standard. A minimum of two years of field experience is required. A professional license is preferred, but recognizing that the combination of WELL Building knowledge and casino design is rare, emphasis will be placed on WELL Building knowledge or certification.

Participants are provided background information for the study, its purpose for investigating casino servicescape design and its potential impacts on problem gambling. With

context from earlier phases of the research including emphasis on reconciling architectural vocabulary from disparate fields and recognizing there is interest from casino guests and ability amongst casino designers to have strategies implemented, the participants are separately sent questionnaires asking for expert opinion on the following:

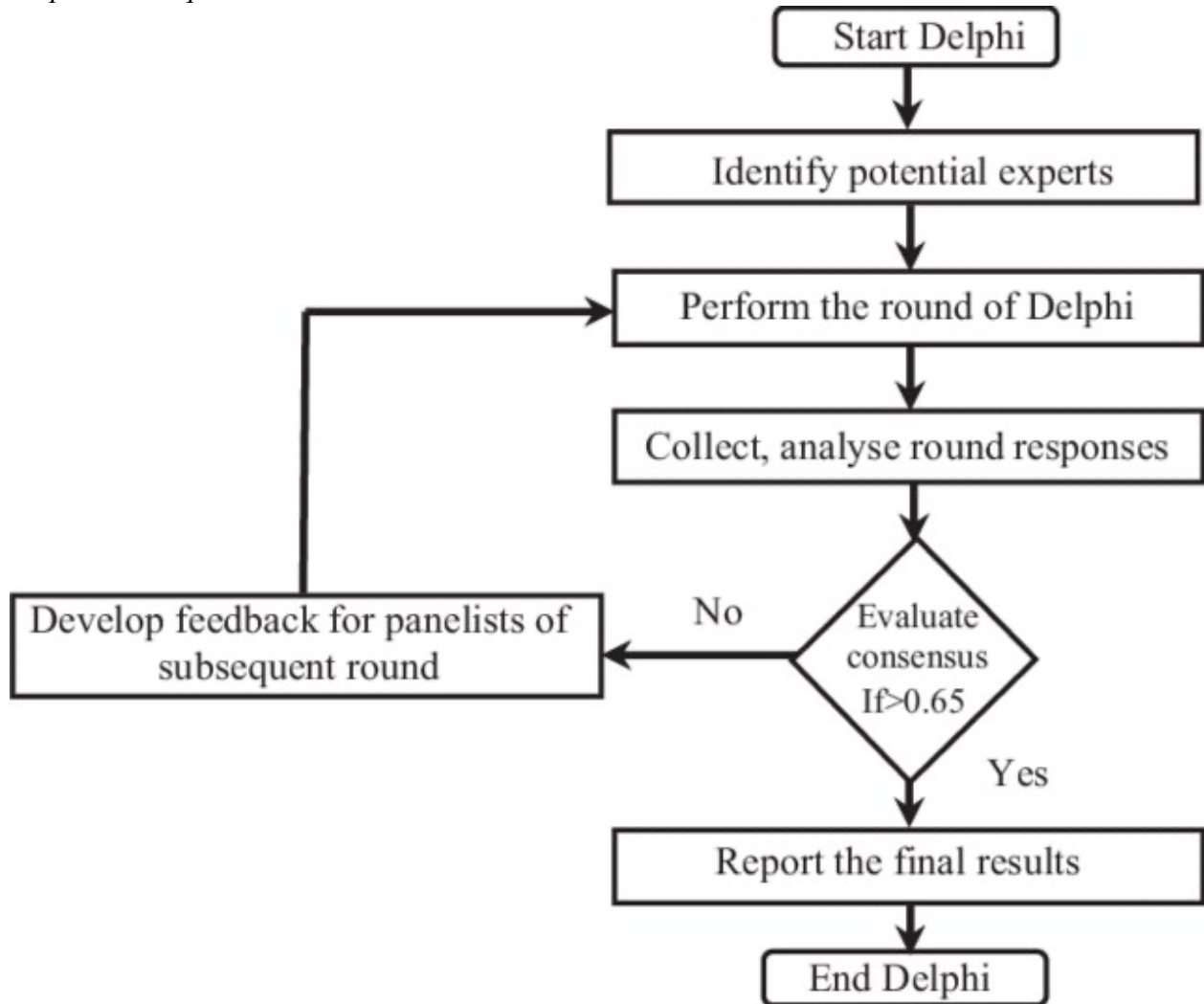
1. Whether and how they can identify casino servicescapes designed with wellness design principles aimed at addressing concerns around problem gambling.
2. How to best implement servicescape design practice aimed at curbing problem gambling (e.g. develop mandated design guidelines, work submitted to design review committee, secure wellness design consultant, other)
3. How to illustrate that specific design decisions are likely to achieve intended effects better than other design alternatives (e.g. require designs reference clinical trials or published research results, conduct experiment with proposed design schemes, conduct focus group with final design proposal with alternates/substitutions to address problem gambling concerns, other)
4. How to assess the effectiveness of the built environment post-occupancy (e.g. compare problem gambling data for the property in focus with other casinos, compare post-occupancy data with pre-construction expectations, compare existing conditions with potential improvements during future remodel(s), redesign(s), addition(s), expansion(s), etc., other).
5. Whether and to what extent they would implement the WELL Building Standard in casino servicescape design.

After performing each round of Delphi, responses are collected and analyzed. Consensus in Delphi techniques is seldom quantified a priori and may range from 50-100% with 75% as the

median (Diamond, 2014). Sixty-five percent shall be used as a guide during analysis of responses. When evaluating consensus, if $<.65$, we develop feedback for panelists and perform a subsequent round of Delphi. If $>.65$ we report final results and end the Delphi. Advancements in conducting Delphi techniques are applied (Beiderbeck, 2021). In some instances, we may invite additional commentary from the panelists on the analyses of the previous round to confirm agreement in the assessment and offer the opportunity for any additional comments or challenges to the consensus.

The analysis of qualitative methods in a Delphi technique can be met with low levels of confidence. The credibility gap can be narrowed through the use of third-party independent assurance. An expert in the field of environmental psychology and professor of interior design will independently evaluate participant responses in search of constructs within the data to validate study results.

Figure 7
Delphi Technique Flow Chart



Note. Figure reproduced from Beiderbeck, 2021

Chapter 4

Results

P1a – Content Analysis of Servicescape Texts

There is a level of precision the business/hospitality researchers apply to their observations and calculations. However, the lack of definition in their descriptions of the architecture can lead to misunderstandings through their attempted measurements. In the following examples readers can be misled to assume integration of elements in a particular dimension will produce a sense of professionalism. In this case, the fifth dimension of hospitality organizational culture is described as facility atmospherics as follows, “...this dimension, which comprises architecture, décor, furniture, lighting, color, sounds, and odors of the facility, is extremely important since it creates the impression of professionalism and quality of service.” (Pizam, 2020). Décor, for instance, may create an impression of professionalism, but it could just as easily create an impression of absurdity, amateurism, or audaciousness based on the elements comprising the décor and their overall integration with one another. From French Provincial chairs to futons, furniture can signal fun, frugal, formal, or fantastical among other alternatives to “professional” based on the subtleties of the furniture from material, construction, proportion, arrangement, and more. Architecture, lighting, color, and other aspects of a facility are not just absolute items on a checklist. They are concepts that encompass an infinite variety of options, which through the careful (or not so careful) design decisions of a professional may be integrated (or disintegrated) into compositions that do more than create impressions on customers. They impact thoughts and behaviors, support (or hinder) work productivity, and set the stage for days or even decades of decisions within their dimensions.

In a casino-specific servicescape article, “machine density, aisle width, sight lines and the effective use of signs,” play essential roles in the navigation of a casino, which yields the hypothesis, “Casino navigation will produce a positive effect on servicescape satisfaction.” (Lucas 2003). The casino management researcher was methodical within the discipline of gaming and casino operations, but architecturally there is no specific measure of machine density or even a range of targeted compactness. Aisle width is not given a dimension. Sight lines are not described by vectors within a space having key starting points nor having specific direction or cone of vision criteria. The “effective use of signs” can easily give credence to wayfinding, warnings, or wording in the workplace without considering how they work with the overall aesthetics of the servicescape. All of the servicescape elements can be examined individually, and they must be considered in all of their possible combinations.

Some elements of servicescapes were described in seminal research as “purposely general” to be explored and expanded through additional research (Bitner, 1992). Experimental methods were suggested as possible ways for assessing design, but acknowledgment of the expense of constructing actual buildings led to simulated environments as an accepted alternative for environmental psychology to achieve generalizable results (Bechtal et. al. 1987). Still, there is a disconnect between recalling that people perceive environments holistically and suggesting “it may be necessary to vary several environmental dimensions simultaneously to achieve an overall perception of the surroundings that will significantly influence behavior,” as simulations have never included all stimuli present in the holistic real-world and rarely control for dimensions in the simulation (e.g. ill-defined layout, color, décor, etc.). Simulations that rely on verbal descriptions omit visual information. Simulations that rely on photos/slides do not include sound, videos do not include smell or touch. The limitations have been extensive throughout the

course of this field of research. For the environmental dimensions to only come as close to architecture as “space function, layout, and style of décor” is partly why two gaps have existed for so long. A gap within the marketing research and a gap between marketing/hospitality/business administration research and architectural research and practice have grown as the business and architectural disciplines have been disconnected. Layout and décor, as they have been frequent fixtures in published research outside the field of architecture, do not encompass the contextual, inter-relational, nor three-dimensional aspects of the built environment. Through the following analyses of architectural texts, we see a more abstracted and expansive description of design, which suggests the gap may be at least partially filled by translating between these disciplines.

Analysis of Architectural Texts

First and foremost, recognition of the fundamental disconnect between the disciplines of hospitality administration and architectural design must be addressed and understood before the process of selecting, reviewing, and coding source documents. An initial library search of all locations throughout the UNLV Libraries collections with key word, “servicescape” yielded 1,500+ results. When focusing the query to the Architecture Studies Library (the largest architecture-specific library in the United States west of the Mississippi River), the search produced zero (0) results.

The realization of the lack of overlap amongst these academic fields that actually coexist in some of the same physical fields is key to understanding the importance of seminal treatises on subjects. Environmental psychology emerged in the 1960s (Proshansky, 1977). The extension of psychologists’ research into the built environment evolved in concert with architects and urban designers. Many early writings focused on design at a large scale: regional and city

planning, master planning, neighborhood development, and whole buildings (Appleyard et. al, 1966; Lynch, 1960; Gutman, 1965, 1966, 1972; Michelson; Proshansky, 1976). Kevin Lynch's *Image of the City* (1960) gave us clear descriptions of the following urban design elements: paths, districts, nodes, landmarks, and edges. These were all studied in relation to their role of creating mental images (imageability) in the minds of people who experience a particular city. Parti diagrams were created to communicate the essential characteristics of each design element. Descriptions of the physical world could not be fully communicated through writings alone. Visual stimuli were used to focus on phenomena of the environment. Translation of cities were then shared through diagrammatic representations and verbal explanations not only of the design elements but how those elements were received and impacted by people.

By the mid-1970s business research found that the smaller scale built environment's relationship with customers has a great impact on profitability of a store. Philip Kotler wrote *Marketing Management*, the world's most widely adopted textbook in graduate schools of business, and he later became known as the father of modern marketing. Kotler's work on *atmospherics* (1973) saw ambient design as a marketing device. Specialization began to compartmentalize research. Analysis of design was no longer connecting architecture's impact to the way humans developed a sense of self or relationship with the rest of the world. *Atmospherics* was defined by Kotler in two ways. The "conscious designing of space to create certain effects in buyers," and "the effort to design buying environments to produce specific emotional effects in the buyer that enhance purchase probability." While architectural features surrounded the central focus in *atmospherics* research, architecture as a holistic art and science was not its focus, architects were not involved, and architectural diagrams, drawings, or renderings were not a main feature of the work. Architecture was replaced with "buying

environments.” People were seen as purchasing machines, and design was used to manipulate (a word used later by an interview to describe the tactics of casino design) human emotions to increase purchase probability.

By the 1980s and 90s Mary Jo Bitner’s model of servicescape was the predominant mode for empirical testing of architectural elements in commercial or retail spaces. The concept was defined as “the environment in which the service is assembled and in which the seller and customer interact, combined with tangible commodities that facilitate performance or communication of the service.” The notion of design was replaced with “assembly”, and it wasn’t the environment that was being “assembled” so much as it was the service. Comprehensive composition of the elements being assembled was superseded by isolated investigation of each one. The tangible elements became so disjointed from each other and from the art of architecture that their ultimate measures were not in how well they elicited human emotion or cognition (i.e. mental maps from Kevin Lynch’s *Image of the City* 1960) but in how they performed or communicate a service. There were not architectural drawings, only conceptual models.

One of the most authoritative books on casino design, *Designing Casinos to Dominate the Competition*, describes the “thirteen winning design principles” which includes examples like the following: architectural décor should only be used to reinforce the visual dominance of the gambling equipment (Friedman, 2000). Gambling addiction treatment sites, however, describe the same principles as dominating the building occupants and exacerbating addictive behaviors (Gateway Foundation, 2024). Friedman’s book opts not to abstract the casino servicescapes into architectural drawings or diagrams but instead reproduces photographs of what were debatably some of the most addictive servicescapes of the casino industry throughout the 80s and 90s. The

general ease of interpretability or replicability of meritorious servicescapes without the understanding of their potential shortcomings as architectural spaces potentially contributes to the phenomenon of sameness in casino servicescapes seen in many IR today.

While dealing with architectonic pieces, the origins of servicescape research are a clear departure from architecture. The origins of architectural research being a much older discipline find their roots in the writing of Alberti and Vitruvius nearly seven centuries ago and older. Marcus Vitruvius Pollio wrote *De Architectura* (~20BCE) that established the Vitruvian Triad of *firmitas*, *utilitas*, and *venustas* that is still referenced by architectural theorists today (Lefas, 2024; Gleason, 2023). Leon Battista Alberti's *Ten Books* (1472) echo Vitruvius and draw upon writings of Plato and Aristotle to present a treatise on the sociology of architecture. It is the sociological emphasis that much of the servicescape research lacks. By reducing architecture to "buying environments" and people to "purchasers" it is no wonder why casino servicescapes are the way they are. The societal concerns about problem gambling seem to beg the art of architecture to address the challenge.

The effort to translate between hospitality design and architecture is compounded when having to translate Vitruvius' writings from Latin and Greek to English, yet a key to any explanation of architecture is the value placed on drawing in service to the ideas being communicated. The translator's preface notes, "the fledgling writer abandons a floundering description and simply refers his reader to an illustration at the end of the book, where he promises to draw what he cannot effectively explain." And "It is difficult to translate him without at the same time trying to improve his sometimes-clumsy phrasing, his endless sentences, his abrupt digressions, and his congenial failure to use one word when he can use two..." "There were not even words in his own language to describe what he wanted to discuss."

Architectural theories have almost always sought to balance strength, utility, and beauty. Beauty has been among the most difficult to address as it is not only evaluated through aesthetics but through the architecture's harmonious relationships to the world beyond its physical elements (e.g. context, climate, culture, cosmos). Here, the translator of Alberti's text explains the importance of every design variable within a space as having significance. The servicescape researcher's dilemma of the uncontrolled variables is negated by the architect's insistence on careful composition of all building elements:

“The union and agreement of all the lines and angles in the work, duly ordered for convenience, pleasure and beauty, are disposed and measured out by the composition alone: for if a city, according to the opinion of philosophers, be no more than a great house, and, on the other hand, a house be a little city; why may it not be said, that the members of that house are so many little houses; such as the court-yard, the hall, the parlor, the portico, and the like? And what is there in any of these, which, if omitted by carelessness or negligence, will not greatly take from the praise and dignity of the work. Great care and diligence therefore are to be used in well considering these things, which so much concern the whole Building; and in so ordering it, that even the most inconsiderable parts may not be uncomfortable to the Rules of Art, and good contrivance.”

From the reading and rereading of texts from seminal works in both architecture and servicescape research, the following coding illuminates some of the patterns found within some of the most cited publications in the different but complementary fields (Table 3). More contemporary publications (Mohamed, et al. 2023; WELL, n.d.) in architectural design similarly share foundational principles with tomes from the antiquities.

Table 3*Built Environment in Diverse Texts*

Source	Open Coding	Axial Coding	Selective Coding
Lucas	Ambient Factors Casino Layout Cleanliness Interior Décor Seating Comfort	Determinants of the Servicescape	Segmented Data Points
Parasuraman	Tangibles defined as “Appearance of physical facilities”	Tangibles of Space	
Bitner	Temperature Air Quality Noise Music Odor Layout Equipment Furnishings Signage Personal Artifacts Style of Decor	Elements in the designed space	
Pizam	Architecture Décor Furniture Lighting Colors Sounds Odors	Facility Atmospherics	
Vitruvius	Sturdy (firmitas) Useful (utilitas) Beautiful (venustos) Kindness (xenia)	Human-centered design (theoretical and practical philosophy)	Integrated Design Philosophies
Alberti	Lineament Materials Construction Public Works Works of Individuals Ornament Sacred Buildings Public Secular Buildings Private Buildings Restorations	Sociology of architecture (spans natural sciences, philosophy, economics, politics, psychology, and more)	

Ruskin	Sacrifice Truth (honest display of construction, structure, operations) Power Beauty Life Memory Obedience	Morals inseparable from architecture	Integrated Design Philosophies (continued)
Corbusier	Pilotis Ribbon Windows Roof Garden Open Floor Plan Open Façade	Machine for living... create order in human life.	
Venturi	Rich Ambiguous Contradictory Complicated	Emphasis on enjoyment, recollections, and activities of people using the structure	
Biophilic Design	Visual Connection with Nature, Non-visual Connection with Nature, Non-Rhythmic Sensory Stimuli, Thermal & Airflow Variability, Presence of Water, Dynamic & Diffuse Light, Connection w/ Natural Systems, Biomorphic Forms & Patterns, Material Connection w/ Nature, Complexity & Order, Prospect, Refuge, Mystery, Risk/Peril	Health and Well-being in the Built Environment	
WELL Building Standard	Air Water Nourishment Light Fitness Comfort Mind		

Note: This table includes seventy-five (75) open codes, ten (10) axial codes, and two selected codes (2)

P1b – Content Analysis of IR RFP

Singapore

A complete read-through of each document began the analysis. Coding was developed in three stages, each one building upon the previous (Table 4). The documents were seen as a collection of symbols/text communicating layers of meaning/values (Berg, 2001). The iterative process revealed an earnest interest in soliciting great architectural proposals that simultaneously addressed deep societal concerns. In a section of text dedication to achieving a world-class, iconic development, the document reads, “The IR at Marina Bay is envisaged to be modern and contemporary in style, incorporating an external architectural treatment that is appropriate to its prime downtown location and complementary to the modern image of Singapore as a leading Asian city.” This included such concepts as modern and iconic, which were coded as qualities of the space. Other layers of the text describe the modernity of the bay and the necessity to relate the IR to the rest of the city. These were coded as characteristics of the surroundings (See Table 1). As coding progressed, these elements became part of larger canons expressed through the documents. Quality (and quantity) of architectural elements became recognized as controllable components of the built environment, while character of the surroundings and concerns about problem gambling were recognized as less controllable phenomenon beyond the bricks and mortar.

Japan

The ‘Basic Policy’ published by Japan in the fall of 2019, laid out five casino (IR) criteria:

1. The casino proposal must be internationally attractive featuring clear concept, competitive size, competitive design, competitive quality.
2. Invest in sizeable returns to host community.

3. Take measures to eliminate any adverse impacts such as crime and problem gambling.
4. Have a positive economic effect.
5. Be run by a financially stable enterprise.

Several key concepts are included that would seem to support improved ethical approaches to the design of the casino servicescape. However, closer reading unpacked the semantics to illustrate criteria are generally aimed at the entire IR project but not the casino design, specifically. In the Request for Concept for the Project for Establishment and Operations of Specified Complex Tourist Facilities in Yumenshima, Osaka, the use of the word “attractive” with regard to the casino proposal is not about aesthetics or beauty but being seen as a desirable choice amongst international travelers’ options for IR destinations. Design of the casino is mentioned, but its criteria are not described in terms of quality or creativity. Rather, “competitiveness” and “size” are to be measured in economic effect and sizeable returns to the host community.

MICE Facilities (International convention and conference facilities and Facilities for exhibition and fairs) are not a part of the ethical concerns or major community opposition with developing an IR, yet the RFP dedicates eight times (8x) more guidance on what the MICE facilities should include and how than they do the casino facilities. The organization of the entire chapter or Article 2 on specified complex tourist facilities (IR Facilities), describes a wide range of building programs that are common throughout the country, broadly understood by owners, operators, architects, and more, and universally accepted by society. Convention center, hotel tower, transportation hub, retail and restaurant facilities, cultural attractions, performing arts venue, etc.

Casino facilities and concerns around their impact on wellness are the most contentious part of the entire IR approval process, yet they are addressed in a mere two sentences:

- The IR Operator shall appropriately establish and operate casino facilities in accordance with IR Related Laws and Regulations etc.
- The IR Operator shall appropriately implement such measures as may be necessary to eliminate harmful effects resulting from the establishment and operation of casino facilities (hereinafter referred to as “Measures against Concern”) according to “10 Matters related to Measures against Concerns.”

Embedding the few details of the casino as little more than a footnote at the end of a lengthy list of architectural attractions downplays the significant role of the casino as a driver of the economic performance of the IR and the level of scrutiny its critics would expect it subjected to. This goes against several studies that show why bad news should always be delivered first (Legg & Sweeny, 2014; Marshall, 1981; Pink, 2018; Uysal, 2007). In this case, “bad news” may be subjective, but the real concerns are not about people developing problematic behaviors associated with convention halls or music venues. The reason IR RFPs are so closely contemplated and inspected is because of the casino and its association with difficult societal challenges. If not bad news, the casino can be seen by all as the most difficult hurdle to bringing an IR to fruition. The tendency to focus on easier tasks first, is known as Task Completion Bias and can hurt long-term performance by perpetually putting off the more difficult workload items (Allan, 2023; Cox, 2023; Staats et. al, 2017). Research focused on the “trivial-task motivation effect” which supports the opposite (Gu et. al, 2023), would also reinforce the current call to address the main task of communicating casino servicescapes in a more productive manner.

In matters related to measures against concerns, the RFP includes a section dedicated to countermeasures against gambling addiction. Compliance with “relevant laws and regulations” is first. This is similar to all RFPs and would be expected regardless of the standard written into

the request. The fact that laws exist and there is still so much concern suggests the challenge is not fully address by such regulations as the IR Development Act and the Basic Act on Countermeasures against Gambling Addiction. Second, the RFP notes that IR operators are to “take a proactive approach for responsible gaming as a casino business operator”. Later phases of this research reveal IR architects and Owner representatives may be unlikely to take proactive design measures. Other specified actions in the countermeasures are even less connected to the design of the physical servicescape and more focused on casino operations. Collaboration with the government, strict entrance management, setting upper limit of stakes, counseling systems, providing assistance to police, measures against organized crime, and fostering of human resources are mostly reiterations of what has been done in other jurisdictions.

New York

The New York State Gaming Facility Location Board’s Request for Applications to Develop and Operate a Gaming Facility in New York State (2023) may be the most recent RFP for IR in the world, it is very similar to those from the past couple decades. The document calls for a “gaming facility of [the] highest caliber with a variety of quality amenities.” Although the concept of quality is referred to, no definition of quality is given nor is an example of highest caliber offered. The opportunity to request qualitative information from IR proposals is omitted. Instead, information related to the proposed gaming area is almost exclusively quantitative:

- Square footage of each sub-area and a total for all gaming space.
- Total number of planned tables games, with a breakdown by game type and number of positions per table.
- Total number of slot machines.
- The names of proposed vendors or gaming equipment.

- Number and description of other electronic gaming devices or specialty games being considered.
- Description of size, layout, and location of count room.

Of interest is one of the last bullet points on the topic of “Gaming facility of highest caliber...” which requests information thusly:

- A description of any particular efforts (e.g., design, operations, and/or marketing) that are planned to differentiate the casino from competitors and to maximize the potential of the market.

The examples invite design innovation, but the differentiation is not focused on guest experience or wellbeing. The focus is on business competition like the Osaka RFP. The language, “maximizing the potential of the market” says nothing of the higher order or values of architectural design and the human experience in the built environment. The limited text devoted to design reinforces business and marketing research that frames people as purchasers, as opposed to design research whose lens aims to focus connections between the architectonics of building and the complex challenges and aspirations of society. Requesting so little information about the casino servicescape may be both the biggest problem and biggest opportunity of the IR RFP conundrum.

Separated from the design criteria by twenty pages of information about licensing fees, tax implications, and non-concerning programs such as hotel, convention, and transit hubs to support local culture, the RFP includes seven bullet points on “Problem Gambling Prevention Measures.” The list includes familiar practices: self-exclusion procedures, posting of addiction services phone number, employee training, coordination with local treatment providers, a

description of how problem gambling is addressed at other facilities it owns, and plans for substance abuse programs.

The lack of overlap between the RFP's design criteria and problem gambling measures may be a small but critical reason for the continued challenges of gaining more widespread community support for casino resorts. Through coding, we interpret the data of the RFP to find patterns similar to those collected from architects in phase three of the study. The RFPs for these distinct IR initiatives over the last twenty years have a lot of similarities. We hear from an architect with forty years of IR experience later that casino floors haven't really changed. They are all the same when you strip away the decoration.

Open Coding

The first stage of coding involved identifying key concepts for open coding. When combining all three documents, the list included twenty (20) open codes. There was a lot of agreement between the lists for both Singaporean integrated resorts as the two documents were drafted by the same government merely months apart. The document reporting on the Japanese regulations seemed to have some similarities, but it also brought new concepts such as unique cultural characteristics to the group of readings.

Axial Coding

When looking for similarities between the codes, several very specific regulations about proposed integrated resorts appeared in the documents. Concepts that dealt with building programs, numbers of rooms, amount of floor space, or other numerical values pertaining to the architecture were coded as "Quantity of Space". For developers, these would become clearly measurable responses to the RFP. Next, a couple terms were used repeatedly to suggest a particular style or aesthetic for the design of the integrated resort. These were often generic or

ill-defined terms like “world-class” or “iconic”. They were coded as signifiers of the “Quality of Space”. Moreover, a larger group of codes addressed the intended relationship between the IR and the surrounding contexts. For Marina Bay, these were codes seeking to connect the IR with the Bay, the commercial center, and the night life of the city. The Sentosa document focused on connecting the IR to the tropical landscape with amenities that would address the climatic conditions. The document focusing on the Japanese IR included codes that combined the IR proposal with the culture of Japan. These were all axially coded as the “Character of Surroundings”. Finally, all three documents contained language that expressed recurring concerns about addictive gaming. These were coded as “Concerns about problem Gambling”.

Selective Coding

From the four categories of axial coding, two selective coding categories emerged. The extensive quantity of space codes and vague quality of space codes led to “Controllable Built Environment” The aforementioned codes communicate specific building traits for the IR being proposed while the nebulous ‘character of surroundings’ and ‘concerns about problem gambling’ formed the “Less Controllable Behavior Beyond”.

Table 4*Built Environments in IR RFP*

Open Coding	Axial Coding	Gaming/non-gaming	Selective Coding
Not to exceed 3 Casino no larger than 4 Large 5 Square Ft/Meters 11 The number of 4 Hotel 6 More rooms 5 Convention as big as 4 Conference at least 4	Quantity of Space 46	Problem gambling 73	Controllable Built Environment 66
World-class 8 Iconic 8 High caliber 4	Quality of Space 20	Casino Servicescape 15	
Amenities 19 Modern 1 Tropical 4 Landscape 1 City or bay 8 Country/national-Economy 14 Context 18	Character of Surroundings 65	Non-gaming 117	Less Controllable Behavior Beyond 138
Gambling 10 Gaming 16 Advertising 3 Mitigate 25 Allow or permit 13 Prohibit or exclude 2 Crime 4	Concerns about problem Gambling 73		

Note: This table includes twenty-seven (27) open codes, four (4) axial codes, and two (2) selective codes derived from four official documents seeking requests for proposals for integrated resorts.

P2 – Casino Guest Survey***Demographic Analysis***

A total of 391 surveys were collected via Qualtrics for this phase. Males accounted for 63.3% and females accounted for 36% of the respondents. In terms of age, the majority were between 31 and 50 years old, with 39.5% noting they were between 31 and 40, and 29.34%

indicating they were between 41 and 50. In terms of education, 35.29% of the sample had a master’s degree as their highest earned degree, 17.65% had earned a bachelor’s degree, and 15.09% had earned a high school diploma. Income levels were fairly evenly spread across all brackets with 17.6% earning between \$25,001-50,000 and 20.41% earning \$150,001 or above. The vast majority, 95.9%, of participants were from the United States, and 1-3 people came from thirteen other countries around the world. The demographic profile can be seen in Table 5.

Table 5
Demographic Distribution of Casino Guest Survey Respondents

Gender	%	<i>n</i>
Female	35.97%	141
Male	63.27%	248
Other or prefer not to answer	0.77%	3
Total	100%	392
Age	%	<i>n</i>
21-30	11.22%	44
31-40	39.54%	155
41-50	29.34%	115
51-60	9.44%	37
61-70	7.91%	31
71-80	2.30%	9
81 or older	0.26%	1
Total	100%	392
Income	%	<i>n</i>
Below \$25,000	10.97%	43
\$25,001 - 50,000	17.60%	69
\$50,001 - 75,000	12.76%	50
-\$125,001 - 150,000	11.99%	47
\$150,001 or above	20.41%	80
Total	100%	392
Education	%	<i>n</i>
No high school diploma	2.30%	9
High school diploma	15.09%	59
Some undergraduate college	14.58%	57

Undergraduate degree	17.65%	69
Some graduate school	4.86%	19
Master's Degree	35.29%	138
Graduate Degree and Above	10.23%	40
Total	100%	391
Country	%	<i>n</i>
Albania	0.51%	2
Algeria	0.26%	1
Austria	0.26%	1
Bahamas	0.26%	1
Bolivia	0.26%	1
Canada	0.26%	1
Czech Republic	0.26%	1
Georgia	0.77%	3
New Zealand	0.26%	1
South Africa	0.26%	1
The former Yugoslav Republic of Macedonia	0.26%	1
United Kingdom of Great Britain and Northern Ireland	0.26%	1
United States of America	95.91%	375
Zimbabwe	0.26%	1
Total	100%	391

The purpose of the survey in phase two was to better understand sentiments of casino guests toward the servicescape design. These sentiments were measured in relation to the guests' perception of the built environment's impact on human psychology. This is a departure from almost all other studies of casino servicescape, which tend to focus on surface level factors: satisfaction, comfort, or overall experience. Adults that had visited a casino in the past six months constituted the survey sample. Initial questions sought to discern their preferences toward the designs of the casinos they visit. While the survey includes questions about participants' perceptions of problem gambling, the survey (and the dissertation as a whole) does not include direct observations of problem gamblers. These simply provide opportunity to

identify ideas that might inform subsequent research. A preconception has been that entertainment-seeking casino guests do not want to concern themselves with problem gambling and definitely do not want PG mitigation to impact the casino servicescape. Assumptions have included a shift in design with clinical elements (or sterilization of style) detracting from the traditional casino aesthetic. Results show these stereotypical concerns are not reflective of the average casino guest. Rather, participants showed impressively empathetic perspectives toward problem gamblers.

To answer research questions 2 and 2b, we used a bivariate correlation. To what extent are casino guests aware of the servicescape’s ability to hinder or enhance the gambling experience? We conduct a correlational analysis on questions three and four of the survey. Q3: Casinos are designed like a maze to keep you in them for as long as possible *is strongly positively correlated with* Q4: Casinos are designed without connection to the outdoors to keep time-based distractions away from gamblers (Table 6).

Table 6
Casino Maze Correlation

P-Value < 0.05 correlation is "statistically significant"	<0.00001
Effect Size (Pearson’s r) > 0.5 Large effect	.502
Confidence Interval of Effect Size	.425 to .573
Sample Size	392

In another set of questions, we see participants identifying servicescape qualities’ relationship to gaming experience. Q5: Lack of connection to daylight in a casino can disrupt your internal clock (circadian rhythm) *is positively correlated with* Q6: You would prefer casino spaces designed with views to the outside (Table 7).

Table 7*Casino Lack of Daylight Correlation*

P-Value < 0.05 correlation is "statistically significant"	<0.00001
Effect Size (Spearman's rho) > 0.3 Medium effect	.404
Confidence Interval of Effect Size	.318 to .484
Sample Size	392

The architectural acoustics are also acutely observable. Q11: Noisy casino environments make it difficult to concentrate *is strongly positively correlated with* Q12: You would prefer casino environments with a soothing acoustic quality (Table 8). Lighting and ergonomic design considerations, however, are among several examples of policies with unintended consequences that try to address problem gambling (Bernhard, 2004).

Table 8*Casino Noise Correlation*

P-Value < 0.05 correlation is "statistically significant"	<0.00001
Effect Size (Person's r) > 0.5 Large effect	.566
Confidence Interval of Effect Size	.494 to .629
Sample Size	392

A conceptual leap was made in later questions to ascertain whether casino guests would prefer casinos with servicescapes designed with guidelines to promote health and wellness. A regression model was conducted with survey responses addressing physical health, mental health, problem gambling, and the design characteristics of the built environment. Cumulatively, the drivers in this model *explain a high proportion of* Q19: The design of a space impacts occupants' physical health. A primary driver was Q20: The design of a space influences occupants' mental wellbeing. Q22: Problem gambling is a concern within casinos that can be

addressed through more thoughtful design decisions, and Q21: health and wellness must be carefully considered in casino design are secondary drivers (Table 9). Again, these are not empirical data from observations of problem gamblers. These are participants' perceptions of problem gambling as it is a contributing factor to the overall concerns associated with casino or integrated resort development.

Table 9
Regression Design and Health

Variable	Relative Importance	Coefficient	Standardized Coefficient	P-Value
Q20	51%	0.39	0.4	<0.00001
Q22	26%	0.24	0.2	0.000157
Q21	23%	0.26	0.2	0.0000112

More stringent than mere guidelines, regulations suggest not what casinos ought to do but what they must do. Questions aimed at better understanding participants' feelings toward consumer protections as it relates to PG and design regulations reveal strong agreements and interrelationships. Q30: Protecting casino occupants should be achieved through design regulations focused on health and wellness *is strongly positively correlated with* Q22: Problem gambling is a concern within casinos and can be addressed through more thoughtful design decisions.

Table 10
Correlation of Concern about PG with Protections through Design Regulations

P-Value < 0.05 correlation is "statistically significant"	<0.00001
Effect Size (Person's r) > 0.5 Large effect	.532
Confidence Interval of Effect Size	.457 to .599
Sample Size	392

In response to questions of who should have control or care for the safeguards in the casino servicescape, respondents shared insights pointing to leaders in the gambling industry. Q25: Casino operators are responsible for protecting the health, safety, and welfare of the public within their buildings. *is strongly positively correlated with* Q26: Architects are responsible for protecting the health, safety, and welfare of the public within the casinos they design.

Table 11

Correlation of Health Safety & Welfare with Casino Operators & Architects

P-Value < 0.05 correlation is "statistically significant"	<0.00001
Effect Size (Pearson's r) > 0.5 Large effect	.552
Confidence Interval of Effect Size	.479 to .617
Sample Size	392

Thus, we begin to answer research questions 2b: To what extent should casino servicescapes be regulated to address health and wellness? Survey results show that from the perspective of casino guests, there is overwhelming support for casino design guidelines or regulations aimed at improving overall well-being. Furthermore, patrons place this responsibility on both the architects of IRs and the casino owners.

To better understand the motives behind the participants' responses, a cluster analysis was applied to the data set. The smallest cluster combined everyone that neither agreed nor disagreed with design regulations or had any level of disagreement (from somewhat to strongly disagree). Regardless of whether these people had a gambling problem themselves or had friends or family with a gambling problem, the cluster of 6-17 people out of the entire sample of 391 was opposed to wellness design strategies within casino spaces. The Dendrogram illustrates the large clusters of people strongly agreeing, agreeing, and somewhat agreeing with design regulations and the small (red) cluster of people that do not agree regardless of their own

problem gambling (Fig. 8) or their connection to family or friends with problem gambling (Fig. 9).

Figure 8
Small Cluster with Self PG

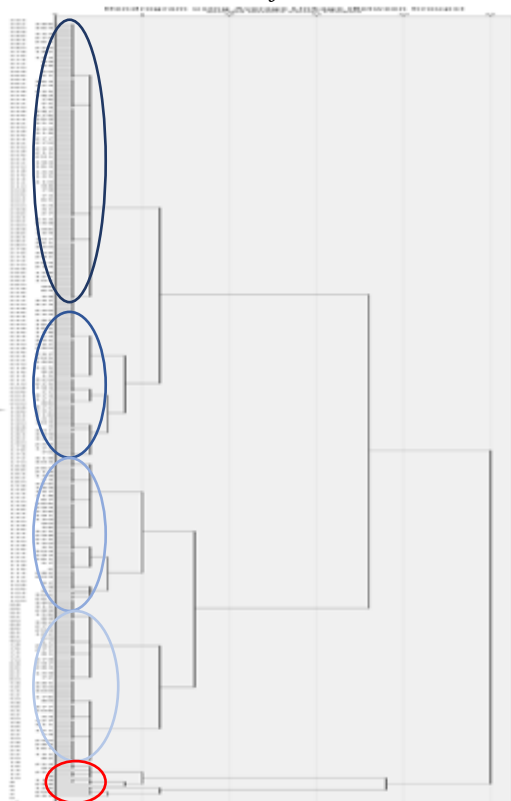
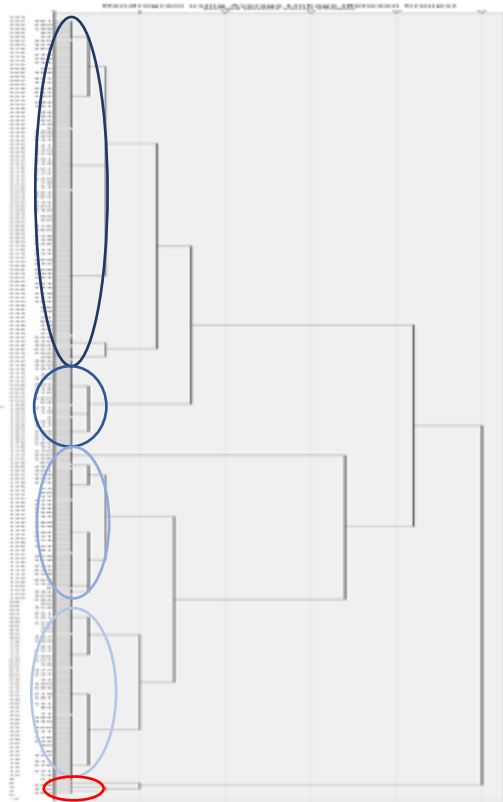


Figure 9
Small Cluster with Family PG



The results show that the vast majority of survey respondents perceive that mental health and wellness of casino occupants may be addressed through design regulations. Of the very few participants that do not agree with addressing health and wellness through design regulations, even fewer form a cluster when those people have a family member or friend with a gambling problem, bringing the total support for wellness regulations from the sample to approximately 98%. This survey does not examine specific design elements or proposed regulations, it is a study of people's perceptions of the relationships between casino architecture and psychology.

Overarching sentiments toward casino design and its impact on health point to openness to new design strategies and support for regulations focused on wellness. The following table

suggests increasingly distinct levels of understanding about the issue by 392 participants that have visited a casino in the last six months.

Table 12
Health in Casinos, Design, and Regulations

Field	The health, safety, and welfare of the public within casinos can be improved.	You would support design improvements aimed at curbing problem gambling.	Protecting casino occupants should be achieved through design regulations focused on health and wellness.
Strongly Agree	33.93% 133	27.55% 108	33.67% 132
Agree	29.34% 115	31.12% 122	27.30% 107
Somewhat agree	18.37% 72	19.39% 76	20.66% 81
Neither agree nor disagree	13.01% 51	15.56% 61	13.27% 52
Somewhat disagree	2.81% 11	3.32% 13	2.04% 8
Disagree	1.53% 6	1.53% 6	1.53% 6
Strongly disagree	1.02 4	1.53% 6	1.53% 6

P3 – Hospitality Architect Interviews

The results of the interviews are summarized in the figure below. The diagram aims to illustrate the conflicting and complementary concepts held within the conversation about casino servicescapes. Extended explanation follows.

1. Feelings are under-explored in relation to the spaces we occupy. (Explore this as adaptation Q5?)
2. In general, architects don't feel personally responsible for PG in part because they are just designing "what their clients want" (Perhaps deliver what they didn't know they really wanted... Q4)

3. Architects recognize the benefit of “good design”, but they’d prefer to reach that goal on their own terms (not through LEED or WELL checklist... and perhaps not through basic delivery of what they are told to do – see Q2)
4. Emphasis on profit precludes possible design innovations (How do we feel? Q1)
5. The HD industry needs to change to be more adaptable. (How else could adaptability/flexibility be achieved – Q3)

Through in-depth interviews with architects having experience in casino design, each progressed from general observations and feelings toward architecture to more specific thoughts on casino servicescape, design responses to problem gambling, and specific reactions to think-tanks for the discipline and proposed guidelines for wellness design. Aided by Qualtrics’ Text iQ function (Figures 11-17) for sentiment analysis along with an inquiry process informed by Creswell and Clark (2018), a few key themes emerged from the architect interviews:

1. When asked about their feelings toward architectural spaces, most participants needed a moment to really think about it, suggesting that this was not something that they had given much thought. Specifically, casino design professionals noted, “Gosh, I’ve never been asked,” and “I had to think about it at first, and then it just hit me like a ton of bricks,” and “Oh, good question... let me come back to this as I think a bit more. I had no idea I’d have to delve into my emotions.” Others were slightly more direct, “There haven’t been any outward emotional responses to buildings per se, I haven’t cried over architecture,” yet “Seeing all the buildings [form] a massive urban wall of buildings, I was speechless. It was more built environment than I could ever imagine being in one place. It was the most emotional I had ever been looking at architecture,” and “It is this kind of feeling like “this is all done for you...”.

Some of the most direct explanations of emotions from design decisions described architecture as an intermediary between humans and the natural world, *“It isn’t as much about how the building looks but how the environment feels to you, how the landscape starts to set up the interior spaces... that feeling that there isn’t really an indoor and an outdoor but a continuous sense of space.”* *“We try to create a range of emotions in all the work [we do] from the use of materials to the colors, the indoor/outdoor, the volume of the space. We look at all of those as components of what can have an impact on people in that space.”* These direct examples, however, described servicescapes adjacent to casinos: lobbies, restaurants, ballrooms, and promenades. When talking about implementing alternative strategies into casino floors, multiple participants conveyed the difficulty of going against tropes describing the casino as a trap: lower ceilings, dimly lit, windowless, and without clocks.

2. There are some tensions that occasionally rise the level of ethical dilemmas when designing casino spaces. Parts of the interviews lend credence to claims of casinos’ qualities supporting addiction by design (Schüll, 2012). There was a recurring theme of more artistic license afforded to design teams when designing the non-casino programs of integrated resorts. Casino design, on the other hand, was driven by bureaucratic inertia. One architect whose portfolio includes multiple resorts in Las Vegas, Atlantic City, and Macau connected the topic of imparting feelings through the form and function of space by explaining, *“Taking the idea of designing architecture to elicit emotions, most people don’t know they’re being manipulated (laughs). Then to marry that with a story, which I guess themed architecture does that. You know... casinos. [Owner’s name] did that. His casinos were designed to be like paradise. The others were copying.”* Stories of

becoming disoriented in casinos were shared, “You always wanted to get [them] lost in casinos. That’s what we did... purposely manipulated. I would get so frustrated walking through the [property name]. I’d walk in the front door and want to go to a show and it’s like, ‘F**k, I wanted to go THAT WAY and I’m over here!’ It’s like I know this place.” When seeking confirmation that the design tactics even work on the creators, the participant said, “Yeah. It’s not by accident. It is very purposefully done.”

The interviews transitioned into questions about health, safety, and welfare, which are among the rights and responsibilities professionally licensed architects are sworn to uphold. Stories from further back in history painted a more dire picture of the situation, “*[redacted] was one of [redacted]’s key employees way back in the day. He has stories of designing the [property name] when the owner was hanging people over the side of the tower by their ankles during construction. I mean real stories back in the day where the architect went to jail. The owner set up the architect... [redacted], look it up. He’s got stories if you want those. Where you’re told to do something and those [are] guys you didn’t say no to. [redacted] is the nicest guy in the world. If he’s still around, tell him I said hello.*” This may have been secondary data shared by the interviewee, but the story shows the longevity of influence throughout the architectural profession that maintains an apprenticeship model for emerging professionals to learn from the experiences of the generations that came before them. Inquiries about any instances where the design team might have felt the need to put their foot down received more promising responses when recalling more recent history, “The architect is a licensed individual. You’re responsible for public safety and welfare. That is almost an easy thing to rely on or fall back on when the client is pushing you to do something,” and “I personally don’t like being pushed.

But at the same time sometimes things can't get better unless you're pushed out of your comfort zone and try to think of something different. There is only one place I can think of Glenn, where I absolutely did not back down and refused to do something." When seeking insights on potential push-back specifically tied to casino design, there were comments that revealed a kind of subservient behavior, *"No, at least for the gaming floor because gaming companies understand the gaming floor as well if not better than architects. Every casino thinks they have their secret, but they're all the same. You dress it up different but they are all alike."* Another creative design professional essentially said the same thing, *"in my 16 years here, I feel like all of the projects in hospitality are pretty formulaic. Things that I designed ten years ago could still be relevant today, but with those examples I can definitely see how things could drastically change in the future."*

As the interviews turned to moral dilemmas, responses tip-toed into more disclosures, *"Um, so you're looking for honest answers here? Not scientific or anything... In my time here, I have seen 40 of my projects built. These are not small buildings. These are giant machines for revenue, profit. So, there is a dilemma there (...) how sad it is to see how many people get addicted to gambling. Even as a local here in Las Vegas, now. You walk through my local joint, you see old people, (...) just gambling their lives away. That's a little sad in my opinion."*

When probing the issue of profitability relative to customer wellbeing (broadly defined), a dissenting view was explained from a participant that had many years of experience in hospitality design but perhaps not as many projects as they would like. *"That is probably more of our moral dilemma right there. Realizing we are hired by clients, but we challenge our clients probably more than we should. We've resigned from*

projects, and we've been fired from projects because of that. We don't look at it like we should go out and help them do the same thing they've done over and over and over. We question them a lot. Some people don't respond well to that. (...) We should be hired because we are the expert, and you're bringing to your client something nobody else is going to bring to them. That needs to be how to challenge them to do things that they might not normally do. The same way we challenged clients with their homes and indoor/outdoor living is similar to how we (...) challenge clients in hospitality.” As many architects noted the repetitiveness of the casino design process, it was helpful to hear an example of what may happen if the process is questioned by the design team. A proposal to approach the casino servicescape differently appears to receive much greater scrutiny as seen in the following example of an architect describing an unorthodox approach to casino design with a spectacular view. *“I could go play blackjack and look out over the whole city, which would be pretty damn cool, but I'm sure the casinos would say something like “people won't play as much if we have that view. To me, that's where I would want to lose my money... sitting up there looking over the city.”* This was one of several moments that conveyed architectural perspectives that try to address guests' overall experiences being limited by owners' primary concern of maximizing profits.

Another architect offered a very different perspective on the predicament. *“I've thought about it before, but I quickly squash it. I'm designing for entertainment. You can spend your money a lot of ways. I've never designed thinking about how to trap people or lure them into spending their money. It's just entertainment. As long as you're being responsible. I'd put that on the gambler to understand if they have a problem. Gambling isn't a horrible thing. You could spend your money on alcohol or a whole*

bunch of food. When done responsibly it is a great form of entertainment. I never felt like I was part of a moral dilemma.” This may be representative of a strong vocal minority in the industry. It was shared with a slightly defiant tone in a familiar manner, like the stories we tell ourselves. During the interview, we failed to distinguish between our focus on larger systemic challenges amongst the design profession and casino industry and this interviewee’s assumed concerns about personal liability for an individual’s gambling addiction.

3. Architects are leery of imposed architectural guidelines and skeptical of commercialized building rating systems (e.g. LEED), but they are confident they can deliver whatever their clients want to pay for. When seeking sentiments toward LEED, which stands for Leadership in Energy and Environmental Design, and the WELL Building Standard, which aims to make spaces where people are healthier, happier, and more productive, the architects of many casinos gave candid responses. LEED has been in existence for about twenty-five years, and it garnered strong opinions from the participants. *“Putting some baselines to all of this stuff when you’re designing a building, it makes sense, but... meh. A bunch of engineers came up with it.”* A slightly more judicious and less lengthy response quipped, *“Next question!”* Typical sound bites from critical architects, are the objectives of LEED should simply be part of the deliverables of every project, and projects that are inherently unsustainable, environmentally, shouldn’t even jump through the hoops of becoming quote-unquote a sustainable building (e.g. big box store situated in a rural area or megaresort celebrating consumerist behavior). *“There are definitely some blinders you put on when you’re doing a LEED building. People talk about spending money on LEED, when actually it should just be good architecture.”* Those

with varied experiences in LEED certified casinos focused on both the effectiveness of sustainability and health-related design and the return on the investment of those decisions, *“That’s a tricky one. I’ve only done a few casinos that went for LEED Certification. (...) Luckily, the casino was on the riverfront, so we were engaging the outdoors and the river. We developed these nice walkways in and out of the casino in pursuit of LEED certification, but it came at a major cost to them. I honestly don’t know how much those get used, like who is riding their bike to the casino when you have all those parking spaces out front, so I don’t know if there is much to do to make their building users healthier.”*

Questions about the WELL Building Standard drew a range of feedback from complete skepticism to embrace: *“I just saw something... an ad for it. Maybe continuing education. It said this is what you want in future buildings, and I thought what is this snake oil?”* *“We’ve come a long way in terms of making buildings safer because of all these standards addressing what is safe and you can’t do that anymore. I grew up when asbestos was the best thing since sliced bread. They were spraying everywhere. Making panels and everything. So, if you get certified for that you’re good the day it gets certified, but who knows what’ll happen a week later. What will they put in that building that you don’t know about?”*

Through conversation, more nuanced takes on wellness design principles in casino servicescapes emerged. *“Hmm, well okay. I think that is something that sounds like a good idea. That just champions “good architecture” (...) like ‘yep, this building has thought about our wellbeing.’ Architects should be doing more of this. I know (firm*

name) is very into LEED and maybe WELL, and I wish more architecture just focused on good design principles. Any programs or incentives that lead to that... I'm all for it."

When pressed to describe how they might feel about a casino space that seeks to integrate design decisions that align with WELL-Standards for improved mental health, the following statements were representative of general approval. *"I think it could only be a benefit."* The stereotypical approaches could be mentioned as strategies of yesteryear, *"The old stories of never putting clocks or windows in the casinos have been rethought. (...) I can imagine there will be more programs that used to be atypical brought into casino spaces to make people feel better. Maybe some places used to appreciate degenerate gamblers, but now I don't think our clients are bad people or want problem gamblers to sneak every dollar out of everyone's pocket. You want positive enthusiasm... not sad and broke. (...) The mental health of people and hospitality clients/guests are only going to benefit from improved mental health and greater architecture that addresses those concerns."*

4. Some of the critical issues identified in this research along with other challenges in the unique industry of casino and integrated resort design may not be adequately addressed through the primarily private industry professionals working in this niche area. Third-party design researchers may be able to offer necessary and neutral perspectives to affect meaningful change. When asked about prospective nonprofit design centers, architectural think-tanks, or community-focused design advocacy organizations focused on the integrated resort industry, participants were even more welcoming of those than they were of LEED and WELL.

Initially, the interviewees struggled to envision a systematic way to explore design solutions to complex problems, but the corollary of community-based design centers often housed in universities positively impacting neighborhood development seemed to allow a conceptual leap to hospitality design think tanks driving innovative change in resort architecture. Participants commented on the comparatively slow adaptation of technology into the architecture of casinos, hotels, and other parts of resort infrastructure. Conversely, others noted how technology could essentially erase elements of the brick-and-mortar experience. Specific affirmations included, “I think a think-tank can start to guide the business of entertainment in a number of ways and what architecture can do to support that.” And “There is some work to be done and a think tank could help. Any collaboration of the minds would lead to better places.”

An anecdote for why hospitality design could benefit from atypical research and development opportunities was revealed in this interview exchange about learning about and from resort architecture,

“PARTICIPANT 2: Gosh, I’ve never been asked. I guess it takes me back to my (School name) design days. We were taught in a certain way and some of these works evoke that. To add to that I really admire (famous architecture) and he’s another (School name) grad.

GN: I’m guessing you didn’t learn anything formally about the [Miami or Las Vegas] Fontainebleau at (School name).

PARTICIPANT 2: [laughs] No, I went there [to the Fontainebleau] well after grad school with friends from work in Las Vegas.”

The built environments along the Las Vegas Strip or associated with casino gambling are seldom discussed in architectural education and themed or even commercial buildings are not always taken as seriously as some of the more iconic edifices of civic structures like libraries, museums, or places of worship in the context of higher education. The opportunity to critically engaged the IR archetype is essentially missing from architectural pedagogy except for the concentration in hospitality design at the University of Nevada Las Vegas' Master of Architecture Program (Nowak, 2019). There, initial instruction and critique focused on the uniqueness of the hospitality industry is introduced within the last year of the program. Expectations of specific learning outcomes and limitations of the academic schedule are overcome. Capstone projects point to potential R&D beyond the classroom in possible future think-tank settings.

5. When asked about architectural lessons learned from one of the most disruptive events in recent history, COVID-19 prompted the architect participants to explain that design flexibility and a facility's capacity for adaptation are among the most important considerations for casino servicescapes moving forward. This is a stark contrast from most descriptions earlier in conversations that characterized the casino as all the same or formulaic. *"The ability to adapt. I know... broad stroke. Similar to technology changing and adapting. Pandemics don't come and go so quickly, but on a smaller scale, buildings need to adapt. It seems counterintuitive to build something so concrete. Its figuring out how a restaurant can operate on any day and during a pandemic. It is mobile gaming and still realizing a space can bring people together."*

Some flexibility is already built in but was not purpose driven. *"I think it is important to make built structures flexible. For example, from the pandemic there were a*

lot of properties that tried to set up social distancing strategies. One way they were able to do this was to make the casino floor more spacious by moving some of their gaming into less-used areas. (...) This was designed for this kind of change. As you know for slot machines, you need the below-slab connections and these floors were set up for things like slot tournaments, so it came in handy when COVID-19 prompted everyone to practice social distancing. We should have even more flexibility built-in for the possibility of future pandemics or the unknowns.” Architectural assessments ex post facto can point to future design opportunities and innovations. The message from most design professionals and casino operators, however, was an eagerness to “return to normal”.

In this excerpt we hear concern or exasperation about the relationship between the people and the built environment relative to a health concern, *“We certainly haven’t learned anything. Who could have imagined people in Las Vegas opposed to taking a goddamn vaccine? And we have hundreds of thousands of people a day coming to town and cramming them into a casino.”* We also see a conceptual connection between built environment and human psychology, *“It’s hard because it’s more human behavior than design. Right away you start seeing all those plexiglass partitions between people sitting at tables and sitting at slots machines, and you think that’s interesting; that might work. Of course, many [all] have taken them down again, so it’s really human behavior. (...) So, if that’s going to be the future of architecture, then I’m really sad.”*

Figure 10
Feelings Toward World Architecture
 All topics

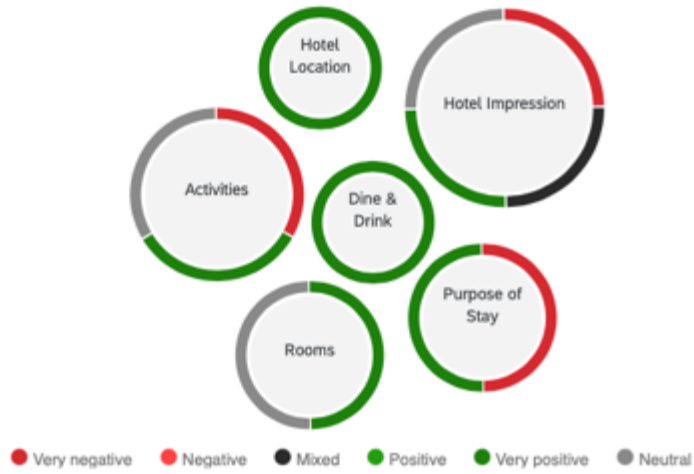


Figure 11
Feelings Toward Las Vegas Architecture
 All topics



Figure 12
Feelings and World Architecture
All topics > HOTEL LOCATION



Figure 13
Feelings and Las Vegas Architecture
All topics > HOTEL LOCATION



Figure 14
Casino on People's Emotions and Behavior
 All topics



Figure 15
Ethical Dilemma Between Client Wants and Guest Wellbeing
 All topics



Figure 16
Ethical Dilemma Between Designing for Client and Guests
All topics > HOTEL LOCATION



P4 – S-O-R Pilot Study with Applications from Results of P1-3

The use of keywords (derived from the content analysis of this study’s earlier phases) as prompts in an artificial intelligence creative image generator yielded surprisingly predictable outputs. More specifically, when the vocabulary to describe architectural servicescapes used words referencing hospitality administration, business marketing, or casino management research constructs, the resulting casino images could be described as cliché, typical, or unimaginative (Figures 22-29).

Similarly, when the vocabulary to describe servicescapes used words referencing architectural theory or design research constructs, the resulting casino images could also be described as somewhat traditional but perhaps slightly more elegant, stylized, or complex (Figures 18-22). When the vocabulary to describe servicescapes used words referencing emerging trends in architectural health and wellness, however, the resulting casino images were

more surprising and could be described as disruptive, innovative, or inspiring because the spaces were not immediately recognizable as casino servicescapes but could eventually be understood or imagined as being conducive to gaming entertainment (Figures 30-34). Over five hundred images were produced. A sample of image results in unaltered groups of four titled with keywords from the written prompts is shown below:

Figure 17
Casino Interior Ambiance



Note. Ambiance is among the most popular descriptors of servicescape and about as broad as the 1970s research into atmospherics as a marketing tool. The images seen here likely hearkens back to early archetypes of modern or legalized gambling such as the Monte Carlo in Monaco. The early precedent has set various stylistic expectations.

Figure 18
Casino Interior Décor



Note. Décor suggests something more tangible than “ambiance”. The lighting levels in these images brighten and draw attention through contrast to decorative motifs in the ceiling, floor, furnishings, and light fixtures.

Figure 19
Casino Interior Contemporary



Note. Contemporary is often used (sometimes synonymously with “modern”) by business researchers to distinguish a servicescape with traditional features. The effects of contemporary concepts seem to translate into continuous, sinuous design elements along with modern lighting technologies that feel more integrated with curvilinear architectural forms.

Figure 20
Casino Interior Modern



Note. The term “Modern” can be catchall for everything from modernism, modernity, future-oriented, state-of-the-art, and more. The lack of specificity can be seen in the variety of images above. The term may be overused (and ill-defined) by business researchers and designers to the point of offering little meaning.

Figure 21
Casino Interior Comfortable Seating



Note. Comfortable seating is often cited as key component of casino servicescape design. These images may begin to illustrate the limits on the level of comfort might be necessary. An environment that supports a sedentary lifestyle or even loitering could be seen as impacting guest health and business performance.

Figure 22
Casino Interior Ease of Navigation Layout



Note. Navigation can be organized through axis, rows, clusters, and more, but orientation to cardinal directions and the outdoors may be lost through the typical disconnect between indoors and outside which impacts sense of belonging or sense of control.

Figure 23
Casino Interior Navigation Layout of Slot Machines



Note. Navigation through a space that is disconnected from the outside world may be easy in terms locating specific slot machines or table games, but the layout deprives occupants of references beyond the casino. In essence their entire environment is exclusively casino.

Figure 24
Casino Interior Vibrant Floor and Wall Coverings



Note. Vibrant floor and wall coverings emerge in the casino servicescape lexicon, but it is unclear whether the “vibrancy” is something that makes the servicescape good or if the design element is simply something most if not all casinos have for reasons unknown. Scholars point to their ability to cause unintentional gambling while online sleuths predict it is their ability to hide messes. Either would warrant further study as camouflaging messes would contradict the servicescape element of cleanliness, and subconscious cues to gamble invite additional questions of ethics in a space already considered by many to be unsavory.

Figure 25
Casino Interior Flashing and Flickering Lights



Note. Flashing lights (along with other design concepts) may be a form of confirmation bias from casinos whose servicescapes have been essentially designed by only a handful of companies with little to no regulations on architectural aesthetics related to environmental psychology.

Figure 26
Casino Interior with Effective Use of Signage



Note. Lack of clarity on the definition of “effective use” results in little visible signage above.

Figure 27
Casino Interior with Abundance of Wayfinding Signage



Note. As “useful” signage increases it may be possible other forms of signage are similarly vying for attention.

Figure 28
Casino Interior with Extremely Effective Signage



Note. The over-stimulation in casino servicescapes may render the most important messages such as exit signs visually obsolete.

Figure 29
Casino Interior Mental Wellness



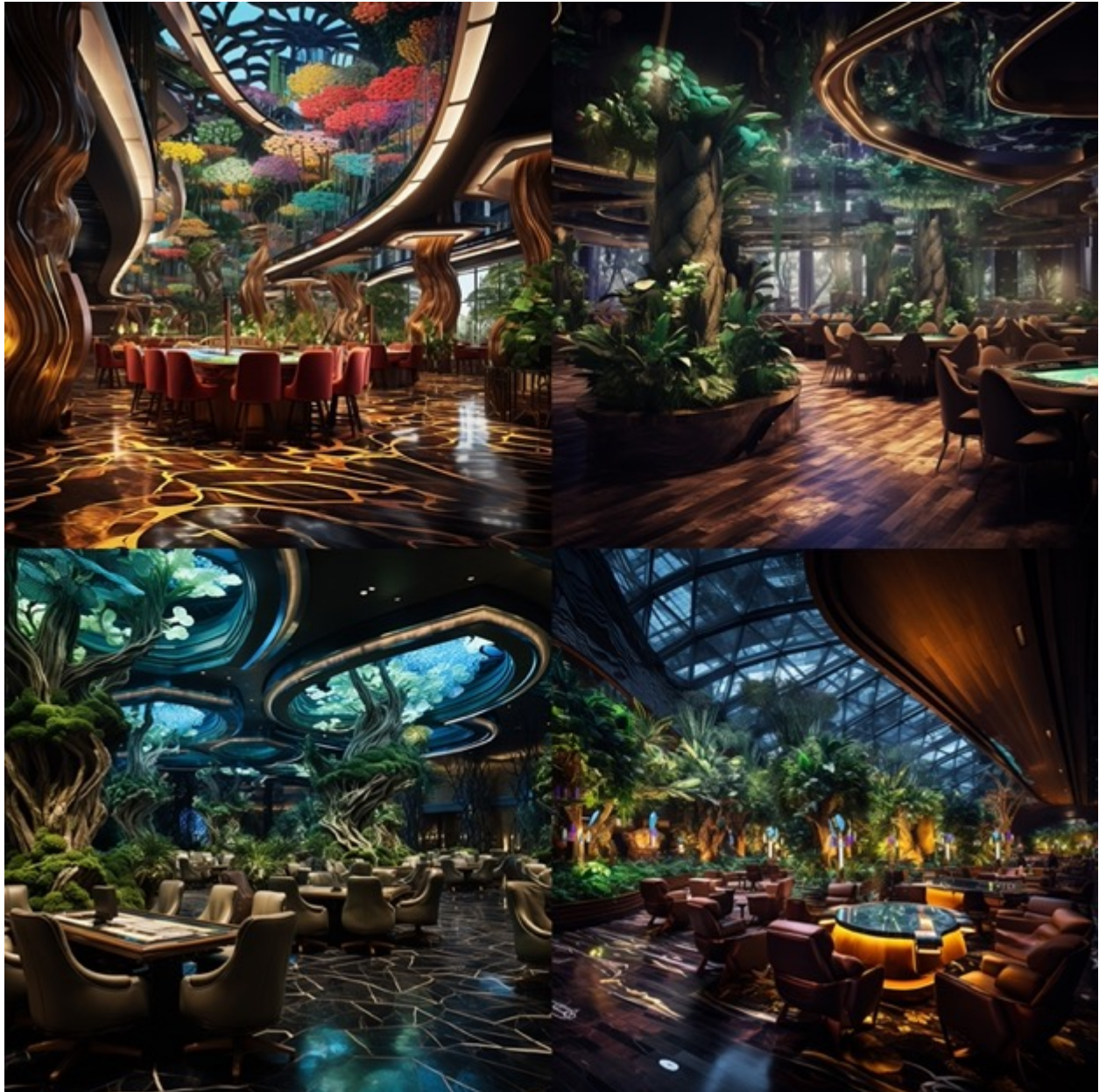
Note. More blues and greens appear with a change in prompts toward mental health. The incorporation of plants appears compulsory by the AI algorithm.

Figure 30
Casino Interior Biophilic Design A



Note. Biophilia yields an abundance of natural light and plants, but the seemingly mutually exclusive concepts of “casino interior” and “biophilic design” appear to create environments where almost all recognition of gambling is removed.

Figure 31
Casino Interior Biophilic Design B



Note. The diffusion model continues to develop visualizations of spaces where biophilia supersedes preconceived notions of casino servicescape.

Figure 32

Casino Interior with Views to the Outdoors and an Abundance of Natural Light



Note. Integrating specific words such as “slot machines” into the prompt helps generate images of an IR transitioning to include alternative design strategies in servicescape.

Figure 33
Casino Interior with Views to Nature, Natural Light, Water Feature and Sustainable Materials



Note. Many images are indicative of world-class IR lobbies, atria, or conference spaces. The synthesis of these features with the casino servicescape is difficult to achieve, even with artificial intelligence.

The Midjourney Bot takes words and phrases of a prompt, breaks them into smaller pieces, and compares them to its training data to create images. The diffusion process includes random but not completely random rules which lead to the creation of unique images every time. The benefit of utilizing AI to address the challenges of creating many stimuli for experimental analysis can be seen in the quantity and quality of image outputs compared to the cost and time previously dedicated to their development. Caution or careful acknowledgement toward the importance of the words used in the written prompts should be part of any well-tempered integration of AI-augmented research practices.

The Effects of Language on Architectural Variables

When applying the stimulus of a particular word (e.g. blue or modern) in the prompt of Midjourney, the response could be an infinite number of options: blue walls, blue furnishings, monochromatic blue, blue accents, dark blue, light blue, blue light, feeling blue, or modern (today), modern (late 19th or early 20th centuries), modern (technology), or modern (departure from tradition), etc. The over-simplification of servicescape elements in the extant literature offers little concrete direction toward innovation for architects and designers drawing construction documents and writing specifications. Thus, like AI generating generic casino servicescapes when prompted with the same old stimuli (keywords/concepts), humans can similarly fall into a pattern of focusing on the less consequential or not seeing the forest for the trees.

The Effects of Variables on Overall Servicescape

Most servicescape variables presented in business, marketing, and hospitality literature are described as positive or negative through their presence or lack thereof, while the quality of those variables remains ill-defined. Seating comfort is understood to be a good thing until we are

challenged to envision what constitutes too much of a good thing. The Disney Pixar movie, Wall-E is frequently referenced for its depictions of people lazily sitting in their mobile reclining chairs all day staring at screens and sipping from their cups. Slot machine and video poker could be made more comfortable, but the question arises, to what end? Effective signage can also be billed as a desirable element of the servicescape. However, signage effectiveness can be pushed to the extreme that we see in Times Square or the Manhattanization of cultural hubs around the world with digitized facades and signs on every surface. Within a casino servicescape, signs can be so overwhelmingly effective (in their ability to inform, warn, or way-find) that they obscure other functions of the space. Occupants may be confident they know how to get from the buffet to the casino, but they may have questions about where to find the nearest exit. A hierarchy of needs are addressed through a servicescape. Profitability is key but it does not supersede occupant health, safety, and welfare.

The Potential Effect of Servicescape on Wellness in Casinos

Environmental psychology is a multidisciplinary social science that studies the relationship between humans and their surroundings. Casino servicescape are one example of a surrounding, and it undoubtedly shapes the way humans feel, think, and behave about gambling. Individual elements of the servicescape can have a measurable impact, yet more often than not the servicescape as a whole imparts an effect on guests.

P5 – Delphi Technique

The architects/designers of integrated resorts are in the unique position of having familiarity with the complexities of IR development. In this Delphi technique, an iterative process to converge on an effective strategy to reconcile data/results from gambling researchers

and needs/wants of community stakeholders with the opportunities/abilities in design outcomes is explored through multiple rounds of questions and answers to arrive at consensus.

A sample of twelve design professionals with knowledge of the WELL Building Standard and at least two years of experience in casino design and development were recruited for the Delphi Technique. The group represented a total of over two hundred thirty years of experience. Half of the participants held executive leadership positions in hospitality design firms or at hospitality/gaming companies. Their titles included the following examples: Founder, Principal, Vice President of Design, and Executive Director of Architecture. Their average experience in the profession was just over thirty years. For most of them, the WELL Building Standard had not been created until well past the midpoint of their careers. One third of the participants were mid-career with an average experience of almost ten years. Their titles included Project Architect, Lead Designer, and Project Manager. The beginning of their professional careers nearly coincided with the WELL Building Standard, which was introduced in 2013. One sixth of the participants met the minimum criteria with just over two years of experience. As emerging professionals working on high-profile hospitality projects, their contribution to the study is unique in that the WELL Building Standard was a part of their formal design education included in parts of the curriculum of architecture and interior design programs in higher education. The variety of perspectives and emphasis on specialized experience and knowledge fulfilled the target sample.

The total time taken by participants to respond to questions in round one was an average of 39.38 minutes. This was slightly longer than the anticipated time described in the recruitment ad and informed consent and may be attributed to one or both of the following. Participants could have spent longer than expected examining the introduction and background information

citing recent problem gambling statistics and the latest description of the WELL Building Standard from the International WELL Building Institute (WELL, 2024). Alternatively, or in addition, participants may have simply spent more time contemplating the questions and providing thoughtful responses.

Q1

Question one presented eight images of casino servicescape and asked, “Which images are of casino servicescapes likely aimed at instilling mental wellbeing (Please enter the letter associated with images in the textbox below), and how do you identify spaces that have been designed with wellness principles?”

Figure 34
Q1 Word Cloud



Through word cloud visualization, steady progression toward unanimous use of the word “natural” to describe the casino servicescape simulations focused on mental wellbeing.

Responses to question one revealed the strongest consensus with 100% mentioning they could identify design with wellness principles through connection to outdoors, and/or natural light and materials (82% use the word "biophilia"/biophilic"); 91% included image H; 73% included E; 63% included E, F, G, and H. Images E,F,G, and H were AI-generated using key words to describe biophilic architecture as presented in two features of the WELL Building Standard. Interestingly, one participant noted they could imagine such design features in their high limit areas, but when designing for the masses, these would be too expensive. The other images were AI-generated using key words to describe typical casinos as presented in a frequently referenced article on casino servicescapes, *The Determinants and Effects of Slot Servicescape Satisfaction in a Las Vegas Hotel Casino* (Lucas, 2003).

Q2

Question two asked, “From your perspective as a design professional, how would casino servicescape design practices aimed at curbing problem gambling be best implemented (e.g. develop mandated design guidelines, have work submitted to a design review committee, secure the aid of a wellness design consultant, or other)? Please provide a detailed response.”

Figure 35
Q2 Word Cloud



This word visualization cloud is distinct from the others in that the appearance of these words have more equal emphases. There are fewer bold words and fewer barely visible background words. More concepts are given balanced representation.

While 75% respondents seemed to suggest problem gambling-specific design measures could be implemented, responses to question two produced the lowest consensus with a small majority (about 58%) suggesting some sort of design guidelines would be best for implementing design practices aimed at curbing problem gambling. Some of those included descriptors like "required" or "mandatory" to describe a potential set of guidelines, which could be considered more stringent than guidelines and rise to the level of building regulations or codes. A minority of participants (25%) mentioned the importance of a consultant in bringing wellness design into casino servicescapes. Unique perspectives on consultants ranged from them being owner

representatives to members of the architectural design team. Outliers shared opposite ideas about financial implications of implementing such design practices: wellness could be seen as contrary to key elements of casino design and cut revenue, and conversely wellness design could be promoted with empirical evidence to show how it could be more profitable and attract more customers. Some noted the complexity of the issue at large and offered insights like "there is no one-size fits all solution". The range of responses along with the notion of "no one-size fits all solution" seems to suggest a consensus for how to implement may not be desirable.

Q3

Question three sought to determine the best way to evaluate design proposals. "How would you illustrate that specific design decisions are likely to achieve intended effects better than other design alternatives (e.g. require design documents to reference clinical trials or published research results, conduct experiment(s) with proposed design schemes, conduct focus group with final design proposal and alternates/substitutions to address problem gambling concerns, or other)?"

Figure 36
Q3 Word Cloud



A cloud visualization of the words used in responses showed an emphasis on “design”. It can be noted that the participants did not use the word “servicescape” in their response, and “design” seemingly covered all aspects of the built environment (e.g. ambiance, décor, layout).

Approximately 83% recommended a form of experimentation to test design hypotheses. These experiments ranged from on-site observations to presentations of design simulations before the construction document phase of a project. Another suggested utilizing focus groups but without mentioning the inclusion of any design stimuli. One noted that research and trials are less effective than good common design sense and operational understanding. A couple comments noted profitability as the driving factor and questioned the return on investment of wellness design.

Q4

Question four asked, “How would you assess the effectiveness of the built environment in curbing problem gambling post-occupancy (e.g. compare problem gambling data for the property in focus with other casinos, compare post-occupancy data with pre-construction expectations, compare existing conditions with potential improvements during future remodel(s), redesign(s), addition(s), expansion(s), etc., or other)?”

Figure 37
Q4 Word cloud



Word cloud visualization shows a variety of concepts were expressed by participants to gain feedback on the effectiveness of the built environment. There was moderate consensus (62.5% agreement) on conducting post-occupancy evaluations to assess the effectiveness of the built environment in curbing problem gambling. Many suggested a multi-pronged approach

The word cloud visualization for question five showed the words “encourage, good, behavior, addition, and occupant” among the most frequently used outside of those that might restate parts of the question. There was a sense of general empathy toward problem gamblers tempered by questions of the complexity of the problem and ways to address it.

There were mostly emphatic "yeses" with 75% agreement that the WELL Building Standard should be implemented to address problem gambling concerns in casino servicescape design. Some even suggested WELL design could create a more pleasant casino that encourages people to stay longer and spend more. Others said it could potentially encourage addictive behaviors. The minority said "no" citing concerns about potential decrease in profits, no measurable return on investment, or the inability to sell the features to the end user. As design professionals it seemed most are willing and able to implement WELL but acknowledge the decision ultimately lies with the client. Thus, an alternative question arises, "Would WELL Building Standards to address problem gambling concerns in casino servicescapes be more likely implemented by clients trying to differentiate themselves from the competition or by clients required to do so by others (e.g. state/local governments in jurisdictions new to legalized gambling)?

In round two of the Delphi Technique, summaries of the round one response were shared with the participants. Notes of commonalities and differences amongst the group’s feedback were provided along with any relative measures of consensus and attention brought to alternative (outlier) responses. Additional comments were invited on each question in round two to provide the opportunity for any participants to weigh-in differently after hearing how others responded.

There were no additional or unique comments shared in response to question one. There was unanimous consensus around notions of natural features and/or biophilic design being a key

part of architectural spaces with wellness principles. The 100% consensus was retained in both rounds one and two. Natural lighting, air, materials, and plants were reiterated as key features of the servicescape.

Question two saw its consensus increase to 75% agreement with there being “No one size fits all” in terms of how casinos would best implement design focused on curbing problem gambling. The inclination for some to respond with explanation as to why a casino owner would not want to do this points to the noted concern that design decisions are almost always driven by the bottom line. At least one participant directly challenged the concern for lower return on investment sentiment summarized in the recap of round one by suggesting that codes or laws could supersede the lost revenue argument.

General agreement was reached on question three with 83% seeing on-site observations and comparisons with other casino data as integral to testing design hypotheses. Specific mention of casinos as “groundbreaking” due to certain gaming areas having views to the outdoors included Cosmopolitan, Wynn, and The Durango as potential sites for future case studies.

The fourth question had only a moderate consensus of 62.5% after round one but increased to 66% in round two. Slightly more participants hinted at the assessment of wellness design impacts on wellness relative to revenue as doable. Almost all responses noted it would be difficult, but not impossible. Deficiencies in the arguments against the ability to assess the relationship between design, wellness impact, and revenue denote a possible lack of awareness of research methods to address the complexity of the question. Complex correlational research or multiple regression are among the methods that can explore (possible causal) relationships among multiple variables while controlling for several others. In response to one of the outlier

responses from the first round suggesting WELL Building Standard could have negative effects, one of the second-round responses specifically noted they would strike the comment that “...preventing problematic gambling would have a negative business impact in this context.” Others noted that good design will remain profitable, and design likely increases revenue; you could test this. Among the more detailed responses to question four, an expert commented that post-occupancy evaluations and comparisons are possible, but they should account for moderating variables like location, gambler demographics, etc. One naysayer claimed it was not possible to accurately measure the relationship between problem gambling and revenue as these things fluctuate over time. However, this comment and a couple others like it may not have considered options of a longitudinal study or structural equation modeling.

Question five also reached consensus in both rounds. 75% agreeing that WELL Building Standard should be implemented in casino servicescape, and 75% agreeing in the follow-up question that authorities having jurisdiction would be more likely to require WELL than client are likely to elect to implement the standards. There was extra commentary such as imagined scenarios of requiring existing resorts to renovate their casino design and the problems that would cause. We recognize that as an unlikely requirement or something that would not be an issue until the very distant future. In jurisdictions where gambling and integrated resorts are already an accepted part of the economy, built environment, and culture at large, requirements for gaming licenses and business operations are already in place and additional standards may not be up for consideration. However, in jurisdictions new to legalized gaming and entertaining proposals for casino/integrated resort development, establishing a higher bar for building design may be more feasible and desirable.

Review of Results

Third party review of the data further validates the results. Through triangulation of response interpretations, similar themes or constructs are drawn from the results. In this phase of the study, a researcher and full professor in the allied discipline of environmental psychology analyzed the responses in Delphi Technique, and found the following:

Question One:

This question received unanimous consensus on providing natural lighting and using natural elements, sometimes referred to as biophilic designs. While the provision for natural views was not ubiquitous, the consensus was that this would contribute to well-being.

Question Two:

There was no real consensus without assumptive extrapolations. Ideas ranged from design ideations to policy and professional services. I suspect a flaw in the question, or the question order, caused the recipient to conflate ideas.

Question Three:

A consensus was reached, but it was not unanimous. The recurring thread seemed based on experimentation with a subject casino and placebo. Referencing other published data along with securing self-report surveys is a second preference.

Question Four:

There was no consensus. Measuring the effectiveness ranged from comparative studies of behaviors, revenue streams, and public opinions.

Question Five:

This question has a 50/50 split, with the initiating WELL having a slightly higher than 50%.

These assessments led to conclusions of consensus where appropriate, or they led to revisions and re-invitations for comment in round two. The sharing of others' anonymous

feedback and notes that summarized the group's responses and outliers resulted in more pronounced consensus in round two. Upon receipt of answers to all questions in rounds one and two by twelve participants, the Delphi Technique concluded with consensus. In addition to the results above, the neutral third-party reviewer shared that the following valuable pieces of information came from the questions/answers:

1. There is an apparent conflict of interest between promoting health and well-being and the fundamental business model of a casino.
2. The application of the WELL Building Standard lacks diverse strategies based on building typology and methods to achieve well-being.
3. There is a disconnect between the architect's desire and the needs of the buildings they design.
4. More continuing education units (CEUs) should be directed to research methods and outcomes as they apply to the practice of architecture and design.

Chapter 5

Discussion

Several findings from the five phases of the research are described at greater length below. Many support the hypotheses of the study, and while the scale of integrated resorts and the magnitude of concerns around health and wellness seem to invite some grandiose design solutions, the grounded theory approach to collecting and analyzing data also produced several surprisingly modest yet impactful conclusions from solutions found in plain sight.

1. The seemingly limitless number of uncontrolled variables of the servicescape can be understood with the design team as one to two dozen highly controllable architectural concepts that can impact the overall wellness of building occupants (e.g. biophilia, environmental sustainability, spatial composition, vernacular design, etc.) (Fig. 39-41).

Figure 39

General Understanding of Servicescape Variables

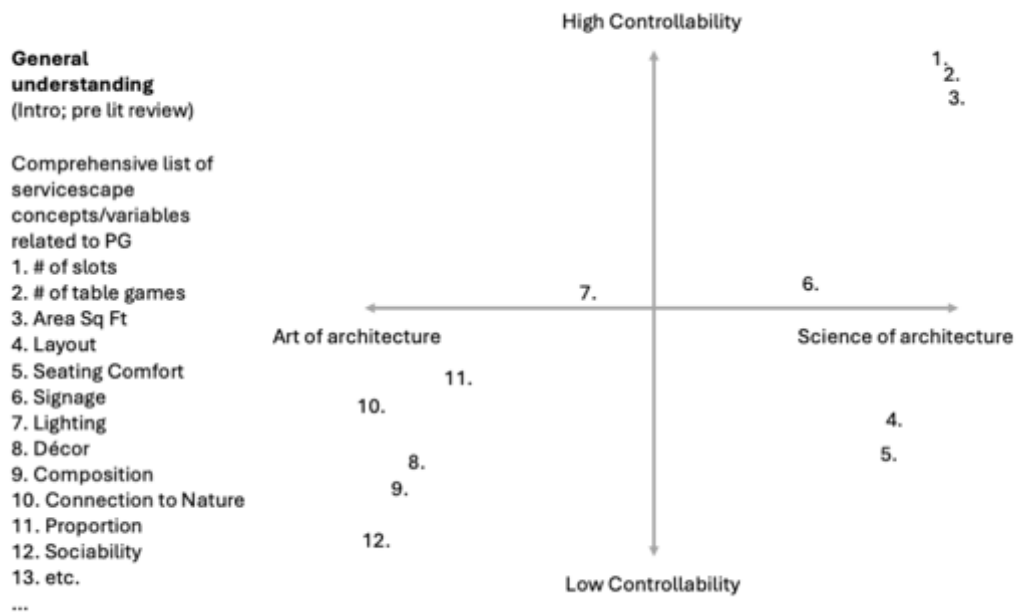


Figure 40
In-depth Understanding of Servicescape/Architectural Variables

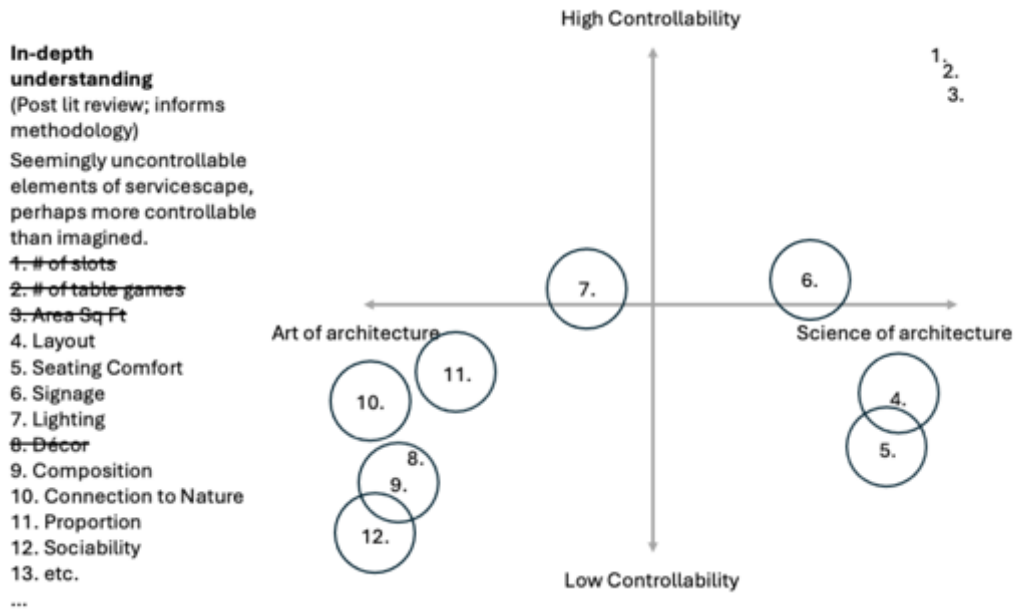
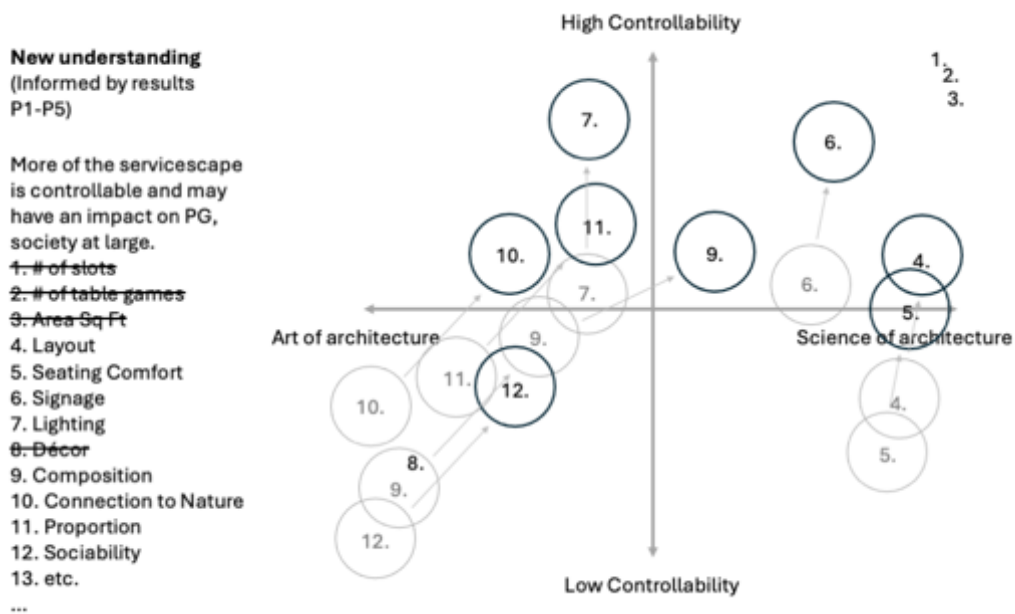
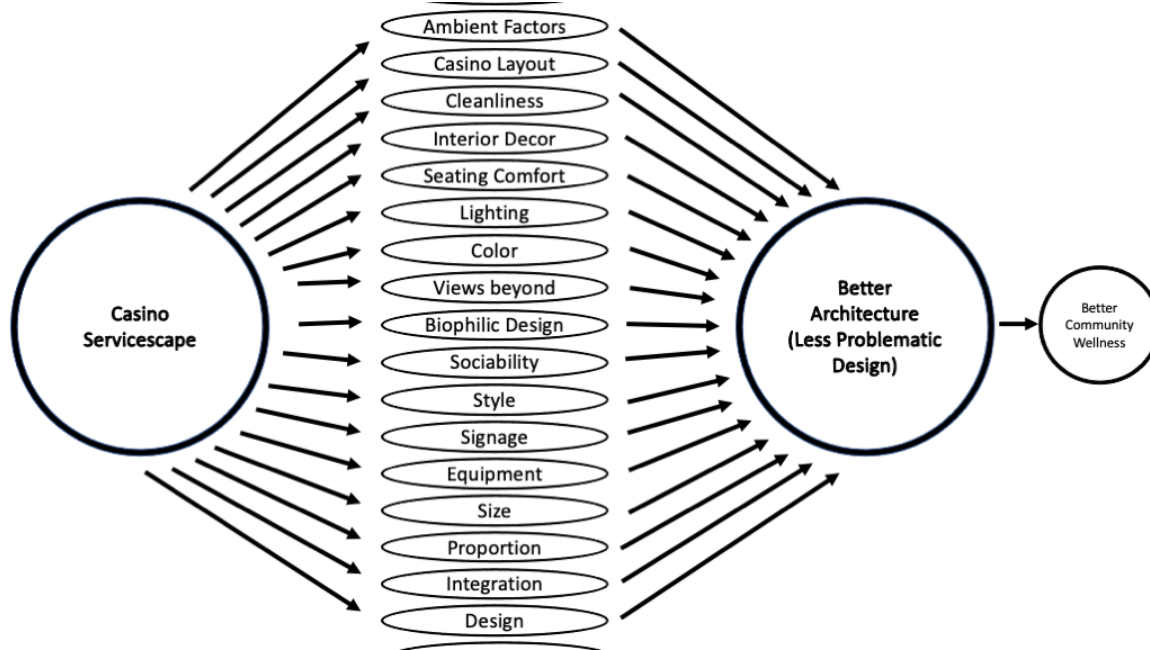


Figure 41
New Understanding of Servicescape/Architectural Variables



2. Variety of architectural expression can be found in hotels, restaurants, lobbies, and more. Extensive creative license is granted to design teams for all areas of an integrated resort except the casino. Inviting more design innovation in the casino can lead to greater guest experience.
3. Positive outcomes for health and wellness are a subset of positive outcomes for society. Thus, better architectural design in casino servicescapes focused on health and wellness may contribute to better community wellness. (Fig. 42)

Figure 42
Less Problematic Design Equals Better Architecture and Wellness



4. Not all alternative design strategies to address health and wellness need to be large, expensive, or fanciful proposals for new casinos. The range of AI responses and the responses from design professions in the Delphi Technique point to no “silver bullet” nor a one-size-fits-all solution.

5. With more older casinos in existence than new integrated resorts under construction, there is a better chance of enacting meaningful change through prudent application of design strategies in facilities scheduled for (even modest) remodeling or renovation.

P1 – Findings

The importance of interdisciplinary research is made more apparent by the gap illustrated between hospitality/business/marketing research and architectural design practice. Casino design in general is not addressed in architectural education or research (with the possible singular exception of the University of Nevada Las Vegas' Hospitality Design Concentration in the Master of Architecture Program). Even the broader concept of servicescape, which represents numerous research streams and a wealth of knowledge in disciplines outside of design is not part of the architectural lexicon.

Empirical research on architecture has expanded in the last several decades to include metrics on everything from embodied carbon footprint for environmental sustainability purposes to indoor air particulates for studies related to human health inside buildings. However, research into architecture as it relates to these separate fields of inquiry seldom address the art and technique of designing buildings as simultaneously seeking to address practical and expressive requirements. Architecture is the science and the art of building, and the design (along with the research of design) can strive to balance everything from the profitability of a space to its energy performance, its societal purpose, and its individual impacts. Integrated resorts try to balance many utilitarian objectives with some of the most demanding aesthetic ends. The means to achieve higher levels of both may be seen through a counterbalance with cross-disciplinary applied research. Problem gambling research is among the most researched areas of the casino and integrated resort industry. While it is addressed through a myriad of business strategies and

funding of social programming (e.g. PG pamphlets, hotlines, self-exclusion programs, employee training, community services, etc.), measures have largely excluded the possibility of rethinking the casino servicescape design. Translation between hospitality theory and architectural practice is key (Fig. 43-44).

Figure 43
Current State of Intersection of Hospitality Servicescape and Architecture

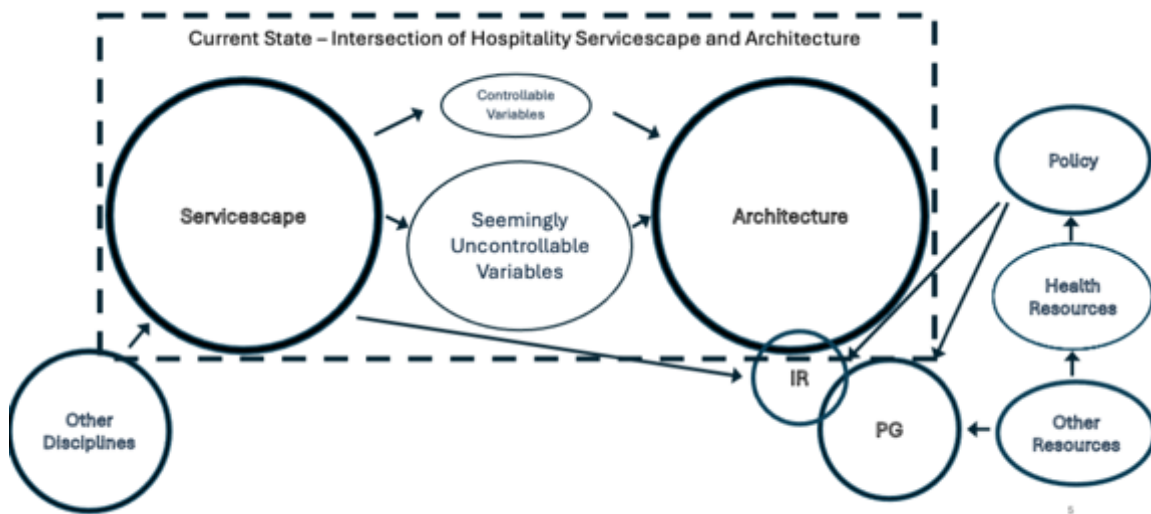
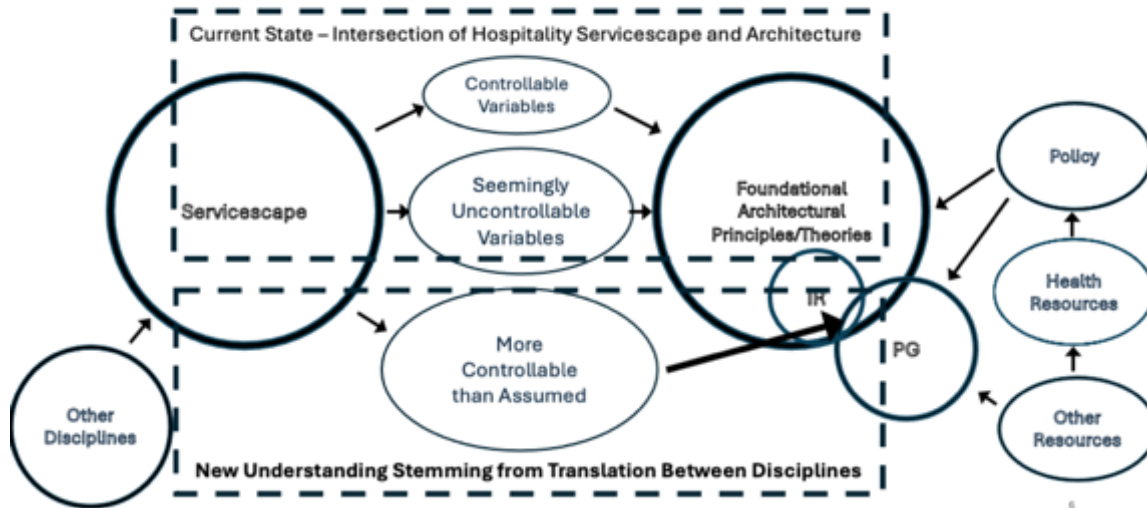


Figure 44
New Understanding Stemming from Translation Between Disciplines



P2 – Findings

The hospitality, tourism, and gaming industries understand the importance of iconic designs delivering unique experiences as opposed to clinical environments and sterile activities. In contrast to imagined concerns about IR guests not wanting casino servicescape design associated with consideration of mental wellbeing, casino guests would seem to overwhelmingly support the effort. Most survey responses showed recognition of the trappings of the casino archetype and resonate with concerns about wellness in casinos. A slight majority of participants acknowledged that they have considered friends, family members, or themselves may have (or have had) a gambling problem. With this revelation, it is less surprising that the overwhelming majority express favor toward casino servicescape guidelines focused on mental wellbeing and characteristics of the built environment proven to curb addictive behaviors. This is not a finding

on problem gambling per se. It is a finding on feelings about problem gambling and its potential relationships to casino design.

P3 – Findings

The semi-structured interviews with architects revealed some dilemmas where they were anticipated and others that had not been considered. A few key themes emerged:

1. Architects were not always prepared to talk about the emotive qualities of the built environment they most admire, yet they shared meaningful insights on how design impacts feelings, thoughts, and behaviors.
2. Architects are not typically formally trained in the processes used to design casino servicescapes; instead, there is extensive on-the-job training, which can be at odds with best practices focusing on most other building types learned in educational settings.
3. Architects are leery of imposed architectural guidelines or commercialized building rating systems (e.g. LEED); they are confident, if left to their creative devices, they can create “good design” that meets minimum requirements while exceeding expectations.
4. Hospitality design would benefit from a dedicated think-tank because the challenges seen in the industry are only partially addressed through professional services aimed at delivering real-world projects on-time and on-budget.
5. The need for integrated resort flexibility is an essential take-away from the pandemic. The casino servicescape needs to be able to adapt to unforeseen challenges.

P4 – Findings

The Midjourney Bot takes words and phrases of a prompt, breaks them into smaller pieces, and compares them to its training data to create images. The diffusion process includes random but not completely random rules which lead to the creation of unique images every

minute. Old processes (without AI) might have taken months and hundreds or thousands of dollars to generate visual stimuli for a survey, focus group, or experiment. AI shrinks that time to mere minutes and the costs to a few dollars. However, just as phase one shows us researchers can look at the same space and describe it in completely different ways, the prompts used to generate images must be well-informed. The moments of AI use in research ought to be preceded by many hours of study and could be opportunities for collaborative testing across disciplines.

P5 – Findings

IR design professionals unanimously identified casino servicescapes that were intended to address mental health and wellbeing. The images they selected were all generated from prompts using language that included health and wellness design concepts. Nearly all participants associated the designs with biophilia. Those that did not use that word or its derivatives used words that reinforced the concepts of biophilic design: natural light, connection to outdoors, plants, etc. There was also consensus around the idea that there are no one-size fits all or silver-bullet approaches to implementing wellness design strategies in casinos. Different cultures around the world, different cities across the country, and even different resort brands and properties may develop unique methods to address their specific challenges. Acknowledgment that empirical studies on the efficacy of wellness design relative to guest experience and casino profitability could be conducted with almost all participants noting it would be difficult.

Findings in Relation to Research Aims

Q1. How do you translate research findings related to casino servicescapes across disciplines? Specifically, between hospitality/business/marketing research to architectural design research.

1. Involve a diverse research team trained in multiple disciplines.

2. Create a shared understanding of research terms, theoretical objectives, and practical goals/applications.

Q2. To what extent are casino guests aware of the servicescape's ability to hinder or enhance the gambling experience? Q2B To what extent should casino servicescapes be regulated to address health and wellness?

1. Casino guests are quite empathetic to the fact that the built environment impacts people's gambling behaviors.
2. Over 60% of survey participants agreed or strongly agreed that casino servicescape design should be regulated to address health and wellness. Support of this may be considered a fundamental duty of the industry, as the casino servicescape sets the stage for all guest (and employee) experiences to follow.

Q3. Are the "uncontrollable variables" of casino servicescape controllable according to IR architects?

1. When studying servicescape in situ, many elements in a space that are not being investigated can be considered extraneous variables if they potentially affect the study. Researchers may have also mislabeled servicescape variables as uncontrollable, when they might have felt the variables were overwhelming when trying to recreate them in a lab-like setting.
2. Design variables are vast if not limitless in quantity, and they are expansive in their possible qualities. Cataloging them or recreating them for experimental purposes requires expertise in design.
3. Through the process of "good design" architects and interior designers note they can develop construction documents and specifications that describe every detail of a space,

and modern technologies enable accurate digital models of buildings to account for virtually all elements of construction.

Q4. How can AI be leveraged to systematically explore the seemingly “uncontrollable” variables of (casino) servicescapes in experimental settings?

1. AI can simulate detailed images of representative servicescapes nearly instantaneously. It can also create variations ad infinitum. Isolation of key variables can be achieved through extraction into other applications and/or fed back into AI prompts.
2. The costs of using the technology are small in comparison to previous methods.
3. Language models used in natural language processing apps like Midjourney require written inputs to generate a result. This research shows that the subtly different languages used from one discipline to the next can generate drastically different results. AI is more fully leveraged when more research is fully referenced.

Q5. How likely are we to see servicescape design rethought to address PG? by whom? In what way(s)?

1. IR architects are enthusiastic about applying creative design strategies (WELL Building Standard or other) to casino servicescapes and are hopeful clients will invite them to rethink traditional practices.
2. The consensus was progressive elected officials or authorities having jurisdiction would be most likely to establish such higher expectations of casino servicescape design.

Limitations

A number of limitations have been cited within the body of this study. It is not a study that has direct observations of or interviews or experiments with problem gamblers. In its effort to address the broader concerns associated with casino development (i.e. individual and community

health and wellness), it merely includes casino guests' and IR designers' perceptions of problem gambling. Some of the specific limitations from each phase of the research are as follows. Phase one's review of related literature compares seminal "servicescape" works from the fields of hospitality/business marketing/casino management with those in the field of architecture. While depth and number of articles used in the datasets may be comparable, their dates of publication were drastically different due to the historical development of the respective disciplines. Comparing scholarly language from the 1990s-2020s to writings from 1950s, 1900s, or even further back present challenges of contextualizing findings. The disparity between the foundational documents, however, is likely among the largest reasons for the divide between the disciplines' understanding of servicescape and the need to translate across the gap. Content analysis of IRs' RFPs is also limited by the relatively few that have been built in recent years. Unlike smaller, less expensive, and less controversial development projects that are built by the hundreds or thousands per year (apartments, schools, hotels, etc.), the multi-billion-dollar resort industry averages less than one per year. Japan, for instance, introduced the IR Promotion Act in 2016. The country finally approved their first casino/IR in 2023, the \$8.1 billion Osaka resort, which is not expected to open until 2029. The pace of development, let alone change, in this industry can be very slow.

Limitations from phase two, the casino guest sentiment survey, included the administration or survey delivery method and the generalizable sample. Lingering safety concerns from COVID-19 transitioned the survey from an intended on-site intercept to an online distribution to ensure adequate sample size in a timely manner. Having participants responding to questions immediately after visiting casino servicescapes might have had a statistically significant impact on the results by remembering details of the servicescape more vividly than

recalling them several days, weeks, or months later. Confirmatory Factor Analysis can lead to better understanding of the data. A separate study with simpler analysis of focused variables using Chi-Squares could examine association between people's awareness of gambling addictions (both within themselves and others) and their willingness to see mental health and wellness addressed through regulations, guidelines, or less formal "best-practices" implemented at a property-level. Also, while the sample size of 392 and other characteristics of the data set (e.g. adults that visited a casino in the past six months) aided in developing some generalizable results, a more focused sample of those diagnosed with a gambling addiction or struggling with problem gambling may have produced more focused results. With PG representing a small percentage of IR guests (2-6%), the decision to keep the larger more generalizable sample was made to holistically address the IR market and wide breadth of casino guests and their varying degrees of gambling activity. It is probable that the random sample included as many as twenty or more problem gamblers, but such information was not collected.

Phase three interviews with IR architects presents the limitation of non-generalizability. While qualitative studies are not intended to be generalizable, transferability may exist in the data due to the nature of the focused group. The specialized knowledge of integrated resort architecture coupled with real-world experience leading design decisions around casino spaces is limited to a small number of firms worldwide with a concentration of firms in Las Vegas. The predominant representation of architects from that single city in the study may lead to missing architectural perspectives from other jurisdictions (and cultures) around the world, but the influence of Las Vegas on IR casino servicescape design across the planet cannot be overstated.

Limitations in phase four include data quality and a lack of human understanding. When using artificial intelligence to create images, the AI heavily relies on data. If the data used to

write (basic word) prompts is inaccurate or biased, the results will be flawed. For this reason, many prompts only changed one word at a time to analyze multiple responses and focused on key words or constructs found in other research. Additionally, large language models (LLM) may misinterpret nuanced concepts or culturally specific meanings that a human researcher might easily understand. For this reason, the study did not explore prompts that might have led to images associated with specific geographic areas or even shown images with people in the casino servicescape as perceived social interactions or geopolitical influences can impact the interpretation of architectural space.

The Delphi Technique in phase five of this study had limitations previously described: lack of clarity on what is meant by “consensus” and the criteria are subjective and participants can be influenced. The threshold for consensus was not set a priori. Literature reviews found accepted ranges between 50-100%. 66% became the target for minimum levels of consensus after round one. In the instance where no consensus was found, the researcher acknowledged the importance of that particular question not deserving a consensus as there was “no one right answer”. The potential for participants to be influenced is a desirable attribute of the Delphi Technique, with experts able to change their answer based on the responses of other experts. The interpretation of the data and sharing of summaries can add researcher bias to the process. The use of a third-party reviewer for validation aimed to address this concern.

Theoretical Implications

Forthcoming research providing a comprehensive analysis looking back on twenty-two years of physical environment research in hospitality points to opportunities for the future (Nanu et. al, 2024). Few servicescape studies in the past two decades engaged in experimental designs or qualitative approaches. The emphasis throughout this dissertation has been placed on those gaps

along with the importance of interdisciplinary approaches. Key importance may be found in collaboration with architects and interior design professionals. Their ability to directly impact the variables within the servicescape design can support experimental methods in this area. Professional designers' integration with physical environment research can further develop the bridging of lexicons in qualitative studies. Additionally, their role in shaping the physical environment and the requisite contact with hospitality facility owners may facilitate new avenues for applied research.

To go beyond general understanding of health and wellness in casino servicescapes, future research can employ case-control studies across multiple casino properties of a given brand or within a particular market, etc. Naturalistic observation of casino guests within a space pre- and post- servicescape remodel can lead to greater understanding of relationships between environment and behavior and constructing an environment and interviewing or otherwise analyzing casino guests at large or problem gamblers in particular are among several methods to examine research questions related to health and wellness in casino servicescapes.

Corporate Responsibility

The field of corporate social responsibility could expand to include design focused on health and wellness. A broad overview of corporate social responsibility literature shows companies recognize CSR as strongly related to company performance (Coelho, 2023).

Many CSR initiatives take place in the wider community (outside of the day-to-day work environment), which resembles many current efforts aimed at addressing health and wellness concerns surrounding casino development. The corporate initiatives are largely focused on everything but the physical servicescape where customers and employees come together. There are corporate social responsibilities tied to local governmental, community, and societal

problems outside the workplace. There are business practices, financial contributions, and support of basic services (Shai, 2021). However, apart from claiming environmentally sustainable building design as an indicator of social responsibility, few studies examine the importance of supporting physical and mental health through design of the built environment in the context of corporate social responsibility.

Corporate, economic, legal, and philanthropic responsibilities are among the typical forms of CSR. Ethical responsibilities are of primary concern for future research building upon these conclusions. Casinos are keenly aware of the benefits of strategic CSR activities, and the ethical responsibilities surrounding responsible gaming are some of the most important (Chen, 2019). Casino critics, guests, owners, operators, regulators, and designers know about most of the existing PG requirements and CSR initiatives. Few have considered design guidelines for mental wellbeing. Most of those that have been exposed to the thesis through this study have expressed interest and support.

Environmental, social, and governance (ESG) practices take a more data-driven approach to the operational guidance found in CSR and reflects a company's internal operations and external impact on society and the environment. Previous research has used ESG and CSR interchangeably, but clearer distinctions between them is needed (Jun 23). ESR research incorporating the differences stressed in this study (between specific variables of the servicescape) can lead to positive changes in the internal process of design and the external impacts of design on casino guests.

Employee Health

Although much of this study has focused on the servicescape's impact on the mental wellbeing of the guest or customer, future research should examine the relationship between

casino servicescape and employee health. Research shows employee health is a mediating role with regard to employee performance, and the workplace environment impacts both (Hafee, 2019). The CSR above can even impact employee well-being (Kim, 2018). Hospitality venues carry distinct factors from other workplaces in that they are open 24/7. Casino employees' well-being is critical, and research has primarily focused on employee working hours, breaks, and access to management among other non-design-oriented strategies (Chaichi, 2023). Casino employees have been shown to exhibit problem gambling at rates three times higher than the general population (Guttentag, 2012). Further research may explore the relationship between exposure to the work environment in greater depth to understand the servicescape's impact on behavior.

Practical Implications

Individual and community health and wellness are among the biggest social concerns surrounding the development of casinos or IR. This is especially true in jurisdictions where legalized gambling is new and integrated resorts do not yet exist. Japan, for instance has long considered bringing integrated resort-style gaming to the country. However, there are concerns about the possibility of gambling addictions, crime, and other social ills. New York City is also joining the ranks of future IR markets, and the major pushback is on the addictive tendencies and the crimes associated with them. Even with the many social programs developed to address this, the stigma associated with problem gambling can stall what could be billions of development dollars. The trend in IR development has typically been to outdo all the previous resorts. They are constantly getting bigger, taller, more iconic, and more expensive. The winning RFPs are often those committing to spend the most money. The opportunity to do better than all previous developments could be defined in a more sophisticated way. If investments were dedicated to

designing safer, healthier spaces with strategies focused on wellness for all casino guests, this research could help address community concerns and the actual problem.

This study and the opportunities of continued research on this topic may lead to community leaders advocating for additional means of addressing the common concerns of their constituency and their critics. Creative thoughts on how to assess design effectiveness were alluded to by IR architects and interior designers in the final phase. With the number of casino properties single companies own, there may be ways to systematize new construction, remodels, and refreshes. By methodically documenting research-informed design decisions greater understanding of the casino servicescapes' variables and their impact on PG can be gained.

Integrated resort developers may become more engaged corporate citizens by incorporating best practices. Policy makers can look to design research to inform higher standards written into building regulations for the casino/integrated-resort archetype. Such findings would be of particular interest in jurisdictions new to legalized gambling and/or seeking requests for proposals (RFPs) for new casino projects. Existing standards (ex. LEED, WELL Building Standard, etc.) used in countless other building types may begin to make their way into more casino servicescapes, or IR-specific guidelines can be developed in consultation with the few researchers bridging the gap between hospitality administration and architecture.

Conclusion

Revisiting the thesis statement, more direction could be applied to the parties potentially responsible for implementing a plan to address the concern.

A condition of actualizing the billions of dollars-worth of servicescapes included in an integrated resort (e.g., lobby, guestrooms, meeting space, spas, restaurants, bars, night clubs, performing arts venues, retail, and more), is a plan to address the concerns

surrounding casino development with design focused on mental health and wellness as an extension of the overall quality of the guest experience.

Researchers have continuously looked for ways to address the concerns of health and wellness surrounding casino development. A focus on servicescape design could lead to research streams exploring the relationship between these large-scale built environments and the wellness of guests and surrounding communities. Casino guests/customers have expressed willingness and even preference for plans to bring mental health and wellness into the forefront of their integrated resort experiences. Architects and interior designers are academically trained and many now have practical experience designing buildings with mental health and wellness initiatives (on archetypes other than casinos). Design professionals that participated in the interview phase and those that were included in the Delphi Technique consider such initiatives to simply be part of “good design”. Yet, they noted casino design is largely dictated by their clients and driven by profits. Thus, the thesis’ premise invites putting plans into action to address health and wellness via casino servicescape design. Broad initiatives focused on well-being may evolve more quickly, and as future research is developed, servicescape design’s impact on problem gambling may be addressed. CSR is nice in theory, but too few (none) of the casino operators in the world have taken steps to address problem gambling through comprehensive casino servicescape design informed by wellness principles. PG is a known health risk. The legalization of casino gambling puts shared responsibility on authorities having jurisdiction and casino operators to evolve the standard of practice in IR development to the meet standard of care increasingly found in nearly all other building typologies.

To argue any such change in design decisions would have to be based on an analysis of the return on investment misses the priority on human health. When the MGM fire in 1980

killed 85 people, and the Hilton fire weeks later killed 8 and injured more than 200, there was an imperative to address the flaws in the built environment. The industry was not going to keep using flammable materials because they were cheaper or avoid upgrading their air handling units because they weren't a visible part of their brand identity. The costs were immense, and the return on the investment was quite unique yet similar to the aim of this research. The investment was in applied design research. The return was the literal return of tourists to The Strip, and it was improved building codes that have protected millions of lives or billions when considering the implications of those Las Vegas fires on the International Building Code and changes in new construction over the last forty years.

Fire science (e.g. chemistry, materials, fluid mechanics, etc.) and building structure science (e.g. compression, tension, shear, torsion, etc.) are among the disciplines that have informed advances in architectural standards for centuries. Many improvements come from examining failures. Lessons are constantly being learned. The tragic Valencia apartment block fire in early 2024 shed light on potential faults in new materials and construction methods (Pinedo, 2024). Building codes will likely be updated in response to that event through their next tri-annual revision.

Environmental psychology (e.g. brain-mediated, bidirectional relationships between organisms and their physical environments) is still an emerging scientific field. Its academic presence can be measured in decades instead of centuries. Unlike structural building failures or physical health ailments or loss of life, the intricacies of the human mind within the complex spaces we design are more difficult to see and by extension more difficult to study. However, advances in this line of research are progressing more quickly than innovations in casino development. Problem gambling and its links to casinos is well documented. The wellness

design principles in this study won't solve the problem, just as building codes don't prevent all fires or structural collapse, but they make buildings safer. The Maya Angelou quote applies, "Do the best you can until you know better. Then, when you know better, do better." As the extant literature in psychology and related disciplines grow, interdisciplinary groups of experts can come together to identify where areas in some of the most visited buildings in the world may have gone wrong, how we can fix them, and why we should do it sooner rather than later.

A proposed framework for a Theory of Hospitality Design Translation

The research output from independent disciplines has been and will continue to be valuable. This research has shown opportunities for value-added impact when identifying academic overlaps between various fields and architecture. The ubiquity of architecture may have desensitized many to the effects the built environment has on our daily lives. However, as this process has unfolded, we further understood the introductory premise, that built environments impact so many of the things studied within them. Architecture is not just another discipline to be studied (or not studied). Architecture sets the stage for virtually all other research questions.

From One Discipline Language to Another

The process of translating research from hospitality administration to architecture can be approximated by the following framework (Figure 46-47).

(developing collaboration, describing, defining, demarcating, designing, deepening, documenting)

1. Develop collaborative partnerships with colleagues from different disciplines to engage in joint study.
2. Describe the phenomena being studied within each discipline to each other.

3. Define the challenges and key influences surrounding the phenomena using discipline-specific language whilst determining shared vocabulary to redefine research objectives, questions, and methods.
4. Demarcate the extents to which the built environments' influence will be considered (e.g. single cone of vision, entire entry sequence, relationship to context, etc.)
5. [Research] Design should include architectural design informed by the process above for purposes of controlling key variables, producing meaningful simulations, preparing experimental instruments or real-world constructed environments to deliver the potential for research results with increased validity.
6. Deepen a shared understanding of how interrelated architectural elements (e.g. natural light & fresh air or electric light fixtures & indoor temperature, etc.) can be connected to broader research implications.
7. Document the phenomena in relation to the architectural stimuli through observational, survey, and experimental research methods among others. Document the phenomena over time, throughout built environment redesigns, new construction, etc. Document the phenomena so that broader audiences (users of space) can understand and appreciate the findings.

From Physical Form to Research Publication

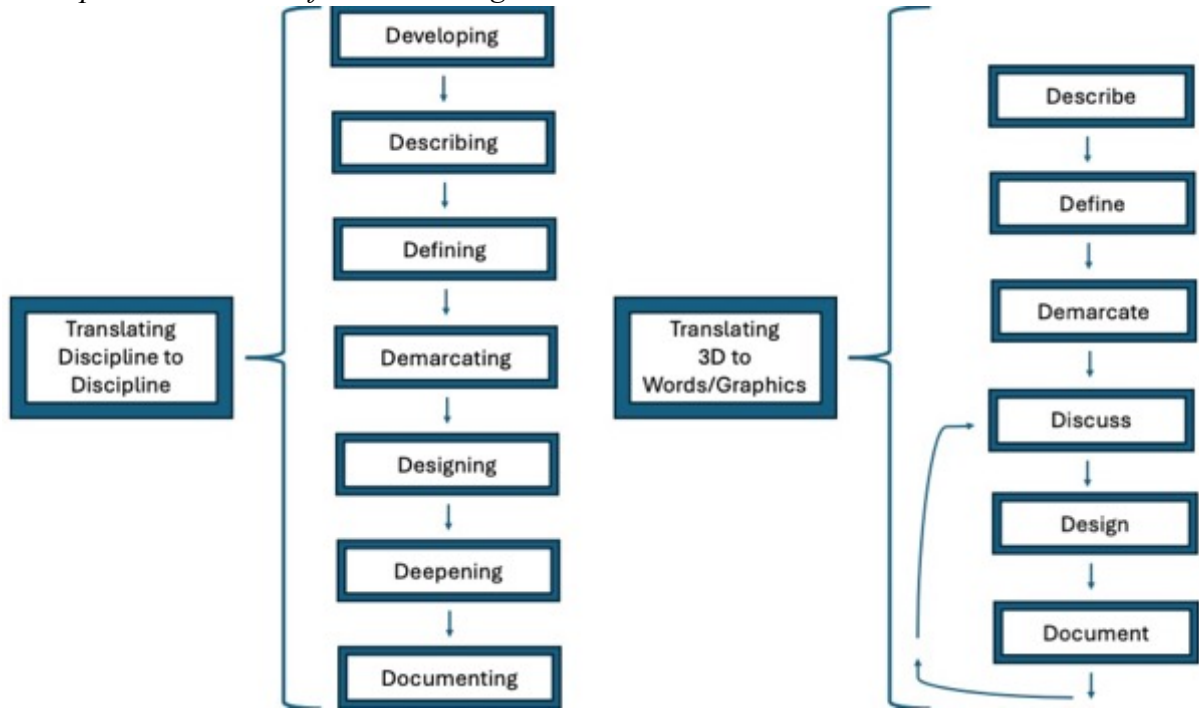
The process of translating built form into publishable media for research purposes may result in any number of verbal and visual cues, the combination thereof being necessary for maximum transference of information across disciplinary boundaries can have multiple ends. In this study the primary graphic elements were AI-generated images. Other outputs could be 2D architectural diagrams, sketches, details, floor plans, sections, elevations, perspectives,

renderings, 3D physical models, virtual models, immersive models, digital twins, and actual buildings (modifications, remodels, new constructions), etc. The conceptual process can be approximated by the following framework (Fig 45).

(describing, defining, demarcating, designing, developing, documenting)

1. Describe the formal characteristics impacting the phenomenon being studied using keywords from disciplines involved with as much detail as possible. A preponderance of architectural terms is anticipated. (e.g. literature review, surveys, interviews)
2. Define patterns of agreement and conflict amongst the architectural/servicescape keywords along with a hierarchy of their relationships to phenomenon being studied (dependent variable). (e.g. coding)
3. Demarcate the architectural elements of the study to be developed as controllable independent variables along with moderating or confounding variables among others. (e.g. discuss with fellow researchers)
4. Through discussions with research collaborators, the architecturally experienced researcher designs the appropriate stimuli (e.g. diagram, rendering, model, etc.)
5. Each stimulus should be evaluated by the team and piloted through external reviewers to assess its effectiveness in capturing important insights from the multitude of disciplines coming together around the subject. (e.g. focus group, Delphi technique, etc.)
6. Document the widest range of the relevant variables in sensible increments while keeping others constant. (e.g. development of multiple stimuli #4-6 to explore range of impact)

Figure 45
Conceptual Framework for Translating D to D and 3D to 2D.



Appendix A



UNLV Social/Behavioral IRB - Exempt Review Exempt Notice

DATE: October 21, 2020

TO: Glenn Nowak, M. Arch
FROM: Office of Research Integrity - Human Subjects

PROTOCOL TITLE: [1654191-2] Wellness Design in Casinos: Sentiments toward mental health guidelines in casino architecture

ACTION: DETERMINATION OF EXEMPT STATUS
EXEMPT DATE: October 21, 2020
REVIEW CATEGORY: Exemption category #2(i)

Thank you for your submission of Revision materials for this protocol. This memorandum is notification that the protocol referenced above has been reviewed as indicated in Federal regulatory statutes 45CFR46.101(b) and deemed exempt.

We will retain a copy of this correspondence with our records.

PLEASE NOTE:

Upon final determination of exempt status, the research team is responsible for conducting the research as stated in the exempt application reviewed by the ORI - HS and/or the IRB which shall include using the most recently submitted Informed Consent/Assent Forms (Information Sheet) and recruitment materials.

If your project involves paying research participants, it is recommended to contact Carisa Shaffer, ORI Program Coordinator at (702) 895-2794 to ensure compliance with the Policy for Incentives for Human Research Subjects.

Any changes to the application may cause this protocol to require a different level of IRB review. Should any changes need to be made, please submit a **Modification Form**. When the above-referenced protocol has been completed, please submit a **Continuing Review/Progress Completion report** to notify ORI - HS of its closure.

If you have questions, please contact the Office of Research Integrity - Human Subjects at IRB@unlv.edu or call 702-895-2794. Please include your protocol title and IRBNet ID in all correspondence.

Office of Research Integrity - Human Subjects
4505 Maryland Parkway . Box 451047 . Las Vegas, Nevada 89154-1047
(702) 895-2794 . FAX: (702) 895-0805 . IRB@unlv.edu

Appendix B



UNLV Social/Behavioral IRB - Exempt Review Exempt Notice

DATE: July 23, 2021

TO: Mehmet Erdem, Ph.D.
FROM: Office of Research Integrity - Human Subjects

PROTOCOL TITLE: [1786419-2] Dilemmas surrounding casino servicescape design and development toward solutions: a qualitative study

ACTION: DETERMINATION OF EXEMPT STATUS
EXEMPT DATE: July 23, 2021
REVIEW CATEGORY: Exemption category #2(ii)

Thank you for your submission of Revision materials for this protocol. This memorandum is notification that the protocol referenced above has been reviewed as indicated in Federal regulatory statutes 45CFR46.101(b) and deemed exempt.

We will retain a copy of this correspondence with our records.

PLEASE NOTE:

Upon final determination of exempt status, the research team is responsible for conducting the research as stated in the exempt application reviewed by the ORI - HS and/or the IRB which shall include using the most recently submitted Informed Consent/Assent Forms (Information Sheet) and recruitment materials.

If your project involves paying research participants, it is recommended to contact Carisa Shaffer, ORI Program Coordinator at (702) 895-2794 to ensure compliance with the Policy for Incentives for Human Research Subjects.

Any changes to the application may cause this protocol to require a different level of IRB review. Should any changes need to be made, please submit a **Modification Form**. When the above-referenced protocol has been completed, please submit a **Continuing Review/Progress Completion report** to notify ORI - HS of its closure.

If you have questions, please contact the Office of Research Integrity - Human Subjects at IRB@unlv.edu or call 702-895-2794. Please include your protocol title and IRBNet ID in all correspondence.

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(702) 895-2794 . FAX: (702) 895-0805 . IRB@unlv.edu

Appendix C



ORI-HS, Exempt Review Exempt Notice

DATE: January 24, 2024

TO: Mehmet Erdem

FROM: Office of Research Integrity - Human Subjects

PROTOCOL TITLE: UNLV-2024-27 Dephi Technique - Best practices in design for casino servicescape wellness

SUBMISSION TYPE: Initial

ACTION: Exempt

REVIEW DATE: January 24, 2024

REVIEW TYPE: EXEMPT

REVIEW CATEGORY: Category 2.(ii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or

This memorandum is notification that the protocol referenced above has been reviewed as indicated in Federal regulatory statutes 45 CFR 46 and deemed exempt under Category 2.(ii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or

PLEASE NOTE:

Upon final determination of exempt status, the research team is responsible for conducting the research as stated in the exempt application reviewed by the ORI – HS, which shall include using the most recently submitted Informed Consent/Assent and recruitment materials.

Appendix D

Survey Questions

Informed Consent

Hello and thank you for your interest in participating in a UNLV research study. This brief questionnaire consists of forty questions and takes approximately 8 minutes. The survey is designed to measure sentiments toward casino environments, the perceived mental health/wellness of those spaces, and the level of support for increased expectations of the architecture of integrated resorts. Responses are anonymous, and limited demographic data will be collected to preserve participant anonymity. Participation includes minimal risk such as possibly feeling uncomfortable answering some questions. Any questions you may have about the survey can be directed to the principal investigator at glenn.nowak@unlv.edu. For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact **the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 888-581-2794 or via email at IRB@unlv.edu**. Participants must be at least 21 years old.

Participation is voluntary, and you may decide to quit at any time. With your informed consent, would you like to participate?

Yes, I consent.

No, I do not wish to participate.

Screener

To what extent do you agree with the following statements?

How frequently do you visit casinos?

I have never been to a casino. Less than once per year About once per year
A few times per year

About once per month About once per week About once per day

Survey

Casinos are designed like a maze to keep you in them for as long as possible.

Casinos are designed without connection to the outdoors in order to keep time-based distractions away from gamblers.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Lack of connection to daylight in a casino can disrupt your internal clock (circadian rhythm).

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You would prefer casino spaces designed with views to the outside.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Low lighting levels in casinos focus your attention on illuminated gaming areas.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Low lighting levels in casinos obscure none gaming activities.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You would prefer casino environments with lighting that helps you move through the space.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Casinos are generally loud/noisy.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Noisy casino environments make it difficult to concentrate.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You would prefer casino environments with a soothing acoustic quality.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Casinos can get quite smoky.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Recirculated casino air causes you stress.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You would prefer casino spaces with fresh air.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly Disagree

Casinos are filled with comfortable seating options.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

A surplus of seating promotes sedentary casino activities.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You would prefer casino seating that is not too comfortable.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

The design of a space impacts occupants' physical health.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

The design of a space influences occupants' mental well-being.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Health and wellness concerns must be carefully considered in casino design.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Problem gambling is a concern within casinos that can be addressed through more thoughtful design decisions.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You would prefer to frequent a casino knowing that it implements designs that promote health and wellness for all occupants.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You would encourage casinos to adopt design policies that improve wellness through the built environment.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Casino operators are responsible for protecting the health, safety, and welfare of the public within their buildings.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Architects are responsible for protecting the health, safety, and welfare of the public within the casinos they design.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Individuals are responsible for protecting their own health, safety, and welfare within the buildings they occupy.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly Disagree

The health, safety, and welfare of the public within casinos can be improved.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You would support design improvements aimed at curbing problem gambling.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Protecting casino occupants should be achieved through design regulations focused on health and wellness.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

Demographics

You feel confident in casino spaces.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You feel in control in casino spaces.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You have felt like you might have a problem with gambling.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

You have felt like a family member or friend might have a problem with gambling.

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree
Strongly disagree

What is your gender?

Female

Male

Other or prefer not to answer

What is your age?

21-30 31-40 41-50 51-60 61-70 71-80

81 or older

Which of these describes your personal income last year?

Which of these describes your highest education level?

No high school diploma

High school diploma

Some undergraduate college Undergraduate degree Some graduate school master's degree

Graduate Degree and Above

In which country do you currently reside?

In which state do you currently reside?

Below \$25,000 \$25,001 - 50,000 \$50,001 - 75,000 \$75,001 - 100,000 \$100,001 - 125,000

\$125,001 - 150,000 \$150,001 or above

Appendix E

Semi-Structured Interview Outline

1. Welcome and thank you for joining me. Note about interviewee's expertise in hospitality design, stature in the profession, impassioned views toward the built environment, etc.
 2. What compelled you to become an architect/interior design?
 3. What are some of your favorite works of architecture? (Why?)
 4. How do those spaces make you feel? (elaborate as needed)
-
5. Are there any designed spaces that make you feel that way in Las Vegas?
 - a) Any hospitality design spaces that leave a similar impact on you?
 - b) How does the design reinforce that feeling? (What does the architecture look like, or what features make it "work"?)
 6. Thinking of some other feelings (good and bad) that architecture can elicit (e.g. awe, pride, sorrow, loneliness, compulsion), can you give an example of a unique emotional experience enhanced by the built environment?
-
7. In what ways can casino designs impact human emotions or behaviors?
 8. What (if anything) do architects need to think about when balancing their client's pursuit of profits and the end-users' health/safety?
 - a) Do you see a moral dilemma in designing casinos?
 - b) How would you design a casino that promotes strong mental health?
 9. Non-sequitur... What do you think about LEED (Leadership in Energy and Environmental Design)?
 10. What about the WELL Building Standard?
 - a) It has design guidelines similar to LEED but for improved physical, social, and psychological health of building occupants.
 - b) How would you feel about a casino space that sought to integrate design decisions that align with WELL-Standards for improved mental health?
 11. Recognizing not all projects creating mental health challenges may be inclined to focus design resources on the mental well-being of building occupants, in what ways might you recommend the architecture industry work to improve mental well-being?

Would this be appropriately addressed with each client or perhaps through collaboration with government agencies or building code organ_____

12. In what ways could a nonprofit architectural think-tank support the hospitality design industry?
13. This may be the last question... Realizing the architecture industry (and the whole world for that matter) had to change the way we design to engage with one another and with our built environments through COVID-19, what should be the biggest lesson learned in terms of designing for human health and well-being?
 - a) Dichotomous follow-up if warranted: Should these lessons be implemented as preventative measures in buildings or only reactive if/when another pandemic occurs?

Thanks... any questions for me?

Appendix F

Delphi Technique Question Set



Title of Study: Delphi Technique - Best practices in design for casino servicescape wellness

Delphi Technique Questions

Thank you for your informed consent. Your input on the following research questions is greatly appreciated. You may opt out of this study at any time.

The purpose of this study is to investigate casino servicescape design and its potential impacts on problem gambling. Problem gambling is among the largest concerns surrounding integrated resort development and one of the biggest challenges to the design and construction of the archetype around the world. Many safeguards are put in place in the form of social programming, addiction help lines, and funding for security and law enforcement measures. This research posits that the design queues in the built environment of casino servicescapes can be developed with best practices aimed at reducing impulsive gambling behaviors. This proactive approach may help to build support for proposed projects around the world. Earlier phases of the research revealed interest from casino guests and ability amongst casino designers to have strategies implemented. We would now like your expert opinion on the following:

0. Which images are of casino servicescapes likely aimed at instilling mental wellbeing (Please enter the letter associated with images in the textbox below), and how do you identify spaces that have been designed with wellness principles?



a)



b)



c)



d)



e)



f)



g)



h)

1. From your perspective as a design professional, how would casino servicescape design practices aimed at curbing problem gambling be best implemented (e.g. develop mandated design guidelines, have work submitted to a design review committee, secure the aid of a wellness design consultant, or other)? Please provide a detailed response.

2. How would you illustrate that specific design decisions are likely to achieve intended effects better than other design alternatives (e.g. require design documents to reference clinical trials or published research results, conduct experiment(s) with proposed design schemes, conduct focus group with final design proposal and alternates/substitutions to address problem gambling concerns, or other)?
3. How would you assess the effectiveness of the built environment in curbing problem gambling post-occupancy (e.g. compare problem gambling data for the property in focus with other casinos, compare post-occupancy data with pre-construction expectations, compare existing conditions with potential improvements during future remodel(s), redesign(s), addition(s), expansion(s), etc., or other)?
4. Would you implement WELL Building Standards to address problem gambling concerns in casino servicescape design (why or why not)?

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Cornell University, Ithaca, New York
 ARCH 362/602 (Mechanical and Passive Solar Systems)

ARCH 262/562 (Building Technology, Materials, and Methods
 ARCH 110 (Design Studio) and ARCH 130 (Introduction to Architecture:
 Lectures)
 International High School Summer Design Program – Studio Critic

HOSPITALITY
 EXPERIENCE

Director – Hospitality Design (HD) Lab 2010 – Present
UNLV (Prior to fall 2018, the HD Lab was known as the HD Concentration)

- Managed recruitment, admissions, retention, assessment, completion, curriculum, and special projects pertaining to hospitality design in the Master of Architecture Program.
- Supervised professional projects/culminating experiences
- Led sponsored design research studies and served as faculty mentor to international award-winning architectural projects
- Frequent speaker/contributor at hospitality industry-related conferences and conventions

Design Consultant 2007 – 2010
Marnell Consulting & Marnell Architecture, Las Vegas, Nevada

Experience in collaborative hospitality design conceptualization and design-build on the following projects...

- Built: M-Resort, Caesars Augustus Tower and Convention Center, Hollywood Casino at Kansas City Speedway, Sahara/SLS redesign (built by others), and Viejas Resort Master Planning (conceptual design and programming completed)
- Unbuilt: Desert X-Press/Xpress West & City View Terminal (High speed rail stations and integrated resort - ongoing), Harrah's Arena, Flamingo Resort Tower and Low-rise Remodel, Dubai World – Island Resort

ARCHITECTURAL
 EXPERIENCE

Architectural Intern 2004 - 2005
Taitem Engineering, Ithaca, New York

Architectural Intern 2002- 2004
US Architects, Muncie, Indiana

Architectural Intern 2000
Kil Architecture and Planning, South Bend, Indiana

Apprenticeship 1998 – 2000
Keller Engineering, Inc., South Bend, Indiana

PROFESSIONAL

AFFILIATIONS & BOARD MEMBER

- American Institute of Architects (AIA) – Architect, Licensed in the State of Nevada (2013-present)
- AIA Las Vegas Board Member (2014-2019): Education Liaison (2014-2019) (2023 – present)
- Association of Collegiate Schools of Architecture (ACSA) – Representative - Faculty Councilor (2008-2016)
- National Council of Architectural Registration Boards (NCARB) – Council #101217 (2013-present)
- AXP – Architect Licensing Advisor (2009-present)
- NEWH – The Hospitality Industry Network (Education Professional) (2012-present)
- City of Las Vegas Arts Commissioner (2012-2013)
- AIAS (student organization) – Faculty Sponsor (2010-2019)
- Tau Sigma Delta – Xi Alpha Chapter of the National Honor Society for Architecture and Allied Arts – Faculty Advisor, Founding Sponsor (2010-2020)

HONORS & AWARDS

Professional

- Finalist – 2nd Annual UNLV President’s Innovation Challenge: WELLSPA Tech, faculty advisor (2023)
- Finalist – 3rd Place Winner (\$10,000 seed funding) – Inaugural UNLV President’s Innovation Challenge: AERO-AI - team member and faculty advisor (2022)
- AIA Nevada Service Awards - President’s Award Recipient (2017)
- AIA Nevada “The Leadership Award” (2015)
- AIA Las Vegas President’s Award (2013)
- Barrick Scholar Nominee (2011)
- Alumni Association Outstanding Faculty Nominee (2011)
- ACSA/AIA – Association of Collegiate Schools of Architecture / American Institute of Architects – New Faculty Award Nominee (2011)
- AIA Associate Member of the Year Award Nominee (2010)
- Robert Fielden Outstanding Architecture Faculty Award Recipient (2010)
- Founder and Editor-in-chief of ASSOCIATION: a student publication of Cornell Architecture, Art, and Planning (the publication continues annually) – Developed in consultation with Dean Mohsen Mostafavi and Associate Dean Stan Taft with mentorship from Professor Buzz Spector. (2006)

SPONSORSHIPS

& GRANTS Highlighting Direct Student Impact

- Community Engagement with Anthem Country Club – Restaurant Design Study - \$10,000 – funded through the Office of Sponsored Projects
 - Glenn Nowak – Principal Investigator led four SoA student workers through research
- NSF - High-speed velocimetry and thermography for thermal and fluid flows (\$500,000 – not funded 2021)

- Samir Moujaes (PI, Mech Eng), H. Jeremy Cho (Co-PI, Mech Eng), Jeehee Lee (SP, Civil and Env Eng and Construction), L.-W. Antony Chen (SP, Env and Occupational Health), Glenn Nowak (SP, Architecture), Robert Rippee (SP, Black Fire Innovation)
- NSF AISL: VEGAS STEM LAB: Cultivating Tomorrow's Engineers through the Entertainment & Hospitality Landscape (\$882,699 – funded 2021)
 - Emma Regentova, Ph.D. (PI), Venkatesan Muthukumar, (Co-PI), Si Jung Kim (Co-PI), Jonathan Hilpert (Co-PI), Glenn Nowak (Co-I), Mehmet Erdem (Co-I)
- Graham Foundation – Learning From Las Vegas' Architecture Collection (\$24,000 – unfunded 2019)
- Las Vegas NFL Stadium District Masterplan Study, sponsored by RAFI Architects (\$5,000)
 - Clark County, Nevada 2018
- DELTA Boarding Area and Process Redesign, with S. Shoemaker, Ph.D. PI, sponsored by Delta Airlines (\$30,000)
 - Atlanta, Georgia 2018
- Hotel Façade/Architectural Branding Study, sponsored by MGM Resorts International (\$13,334)
 - Las Vegas, NV 2016
- Research Contributor (Chapter on Entertainment District) for UNLV DDC-led Westside HUNDRED Plan, sponsored by the City of Las Vegas (\$100,000)
 - Las Vegas, Historic Westside Neighborhood 2015
- Principal Investigator (PI) on Boulder City Hospital Transition Feasibility Study sponsored by Building Hope Nevada (\$16,000)
 - Boulder City, NV 2013-14
- PI on an Ecotourism-based grant from the USDA (\$12,000)
 - Studio of ten students benefitting from free access to remote sites and experiencing adventure tours to support design research, Boulder City, NV 2011-12
- 10th Annual Asia Pacific Forum for Graduate Research in Tourism - Travel Award (\$3,000)
 - Five graduate student works were presented in Singapore 2010
- 99th ACSA Annual Meeting – UFTC Travel Award (\$2,000)
 - Graduate students and I traveled to Montreal to present two works together.
- 2011 Adelaide Fringe Festival – Travel Grant (\$9,000)
 - Team of three students (1 graduate student) traveled to Australia to construct architectural installations at the fringe as part of a college collaborative initiative.
- 2011 International Conference on Arts and Humanities – Travel Award (\$1,200)
 - Graduate Student and I traveled to Hawaii to present two papers; one architectural research paper and one theatrical design process paper
- 2011 USITT Ideal Theatre Student Design Competition Finalist – Travel Stipend (\$1,200)

- Two graduate students and I traveled to the international conference and expo in Charlotte, NC to present their work to the USITT Architectural Commission
- 2010 USITT Ideal Theatre Student Design Competition Finalist – Travel Stipend (\$1,000)
 - An undergraduate student and I traveled to Kansas City to present his winning proposal in the international competition
- 2009 Adelaide Fringe Festival – Travel Grant (\$12,000)
 - Three undergraduate students and I traveled to Australia to contribute to our College of Fine Arts’ presence in the festival, and we presented our work at the U. of Adelaide
- TOTAL = \$1,000,000+ in grants and award monies having direct impact on students and recent graduates (others omitted for brevity)

PUBLICATIONS & PRESENTATIONS

Nowak, G. N., & Erdem, M. (2023, May). From Guest Surveys to Architect Interviews: How problem gambling research can improve casino designs’ response to community concerns In International Conference on Gambling & Risk Taking. UNLV IGI.

Nowak, G., Denig, D., Igbinoaro, V., Fernandez, G., & Hardy, J. (2022, May). Keynote Panel Discussion - UNLV: Lessons from the lab. In HD Expo. HD Expo, Las Vegas, NV

Nowak, G. (2022, April). Architectural Collage: Making every day built environments more hospitable with hospitality design. In National Conference on Beginning Design Students (NCBDS). Ball State University

Mirsadraei, A., Moon, J., Nowak, G. N., & Erdem, M. (2023, February). How Interior layout could be changed in robot-supported Quick Service Restaurants In West Federation CHRIE Regional Conference. I-CHRIE.

Nowak, G. N., & Erdem, M. (2023, January). WELLNESS DESIGN IN CASINOS: SENTIMENTS TOWARD MENTAL HEALTH GUIDELINES IN CASINO ARCHITECTURE In 28th Annual Graduate Education and Graduate Student Research Conference in Hospitality and Tourism.

Sigala, C., & Nowak, G. N. (2023, Spring). Hidden Portals: A reevaluation of employee entrance design. In 28th Annual Graduate Education and Graduate Student Research Conference in Hospitality and Tourism. UNLV School of Architecture.

Nowak, G. N., & Igbinoaro, V. (2022, November). AERO-AI In CFA Creative Collaborations. UNLV College of Fine Arts.

Dey, R., & Nowak, G. N. (2022, November). Stockbook. In CFA Creative Collaborations Symposium. UNLV College of Fine Arts.

Nowak, G. Hotels and Resorts, *Building Types Online* Birkhäuser and De Gruyter, (In-progress)

Nowak, G. The Biggest and Best Design Trends in Hospitality + Entertainment, ARCHITECT Live, Keynote Panel Moderator. December, 2021

Nowak, G. Erdem, M. PPE and the Impact of Hospitality Design: A survey of guest perceptions of architectural alternatives. The 26th Annual Graduate Education & Graduate Student Research Conference in Hospitality and Tourism (Poster), January 2021*

Jiang, J. Navaretto, D. Nowak, G. New Age Arenas: Constructing a Standard Framework for Esports Arenas. The 26th Annual Graduate Education & Graduate Student Research Conference in Hospitality and Tourism (Poster), January 2021*

Denig, D. Kua, M. and Nowak, G. Let There Be Light: The Lack of Daylighting in Casino Design & Its Adverse Effects on the Hospitality Industry. The 26th Annual Graduate Education & Graduate Student Research Conference in Hospitality and Tourism (Poster), January 2021*

Cho, R. Nowak, G. Suess Rasenaviche, C. Research Design & Design Research: Extending hospitality studies into architectural analyses. West Federation CHRIE Conference (Presentation) 2020*

Nowak, G. 40th Anniversary MGM Fire Panel Discussion, AIA National CE (Panel Moderator and Organizer) November, 2020

Nowak, G. A case for increasing regulations on the design features of integrated resorts as a means of addressing broader community concerns. 5th World Research Summit for Tourism and Hospitality. (Presentation), 2019*

Nowak, G. and Shoemaker, S. Redesigning Airport Gates and Boarding Processes: An explanatory study illustrating evidence-based design, The 25th Annual Graduate Education & Graduate Student Research Conference in Hospitality and Tourism (Presentation), 2019*

Panelist “Owners’ Roundtable”, NEWH Hospy’s Breakfast 2018

Session Speaker “Green Voice” HD Expo 2018

Nowak, Glenn NP “Meta-signage and Mega-resorts: A sign of the times” What’s your Sign Symposium: Retail architecture and the history of signage, September 2017*

Nowak, Glenn NP “Las Vegas: A past of hospitality, a future in health, a present linking both through design innovation” Cornell Symposium on Hospitality, Health, and Design Oct. 2016*

Nowak, Glenn NP “Real-world Resort Challenges – Unreal Design Solutions: How Rethinking Architecture Can Facilitate the Expansion of Casino Markets and the Integration of Communities” International Conference on Gambling and Risk Taking (ICGRT), Las Vegas June 2016*

Nowak, Glenn NP “2015-2050: How the Architecture of Integrated Resorts Will Have to Change” ICGRT, Las Vegas June 2016

Nowak, Glenn NP and Talah Pejooch “Changing the Agent of Change: POEs for greater aesthetic and scientific data collection” ARCC Architectural Research Centers Consortium, Chicago 2015

Nowak, Glenn NP, “Weaving Words: Promoting the integration of architectural ideas” NCBDS 30th Annual National Conference on the Beginning Design Student, Proceedings Pages 137 – 141. April 3-5 2014, IIT Chicago Il.

Nowak, Glenn NP, “The Rise, Fall, and Impending Reincarnation of Norman Foster’s Harmon Tower: How Las Vegas has the opportunity to set a new precedent in construction waste management.” ACSA Annual Meeting. March 2013, San Francisco, California

Nowak, Glenn NP, “A Fundamental Lesson in the World’s Largest “Cardboard Fort” NCBDS 29th Annual National Conference on the Beginning Design Student, Proceedings Pages 383-387. April 11-13 2013, Temple University Philadelphia, PA

Nowak, Glenn NP and Limpede, Andrea. “NYC2LV: Shifting Pedagogies Between Park and Playground” ACSA Annual Meeting. March 1-3, 2012, Boston, Massachusetts.

Nowak, Glenn NP and Swendseid. “Structural Scents (The Structure of Scent)” ACSA Annual Meeting. (Forthcoming – March 1-3, 2012), Boston, Massachusetts.

Finn III, JF, Glenn NP Nowak, and Yim Jew. “Mapping and Remapping: Urban Design Typologies and the Malleable Las Vegas” Global Studies: An international conference devoted to mapping and interpreting new trends and patterns in globalization. (June 20-22, 2012), Moscow, Russia.

Nowak, Glenn NP and Heggie, Rory “Architecture of Athletic Venues: Evolving Standards of Sustainability” Sport and Society Conference. (July 23-25, 2012), Oxford, England.

Nowak, Glenn NP. “Beginning of the Never-Ending Investigation: Design” *National Conference on the Beginning Design Student*, 27th Annual National Conference, UNL 1-3 April, 2011 Lincoln Nebraska

Nowak, Glenn NP. "A New Beginning Design Student: From the end of high school to the end of their careers." *National Conference on the Beginning Design Student*, 27th Annual National Conference, UNL 1-3 April, 2011 Lincoln Nebraska.

Nowak, Glenn NP and Suess, Courtney. "Learning From Las Vegas: Learning From Everywhere Else" *2011 Hawaii International Conference on Arts and Humanities*. January 8-12, Honolulu, Hawaii.

Nowak, Glenn NP and Miller, Krystal. "Interdisciplinary Investigations in Theatre Design" *2011 Hawaii International Conference on Arts and Humanities*. January 8-12, Honolulu, Hawaii.

Nowak, Glenn NP and Moser, Josh "Merging Architect and Acoustician" *2011 ACSA Annual Meeting*. March 3-6, Montreal Canada.

Nowak, Glenn NP and Sullivan, Garrett. "Architecture in an Expanded Field: Skeletons in the Desert" *2011 ACSA Annual Meeting*. March 3-6, Montreal Canada.

Nowak, Glenn NP with Mark Bell, Josh Moser, et. al. "Ideal Green Theatre" *2011 USITT Conference and Convention*. March 11, Charlotte, North Carolina.

Nowak, Glenn NP, "One Sketch, One Sentence, One Poetic Stanza: Thirteen Ways of Looking at an Architectural Theory Course" *NCBDS*, Charlotte, North Carolina March 18-21, 2010

Nowak, Glenn NP, "The Art of Architectural Civil War", Presented at the Hawaii International Conference on Arts and Humanities Published in the 2008 Proceedings, Jan 2008

Advancing Cognition in Architecture
May 06

Fall 2004 –

A thesis and experiments using music cognition as an exemplary thought process for the rethinking of architecture

Thesis Committee: Arthur Ovaska (chair), Carol Krumhansl, Jonathan Ochshorn, and Werner Goehner

Successfully defended the thesis May 1, 2006 with an hour-long multi-media presentation and hour-discussion.

ASSOCIATION

Jan '05 – Jan '06

A college-wide, academic, student publication created with a goal of authorial networking across departmental boundaries (web component hosted at <http://www.aap.cornell.edu/association/>)

Founded and acted as editor of volume one - 1000 copies distributed to students and faculty

Supervised as an independent study and supported in-part by Dean Mohsen Mostafavi and Associate Dean Willard (Stan) Taft

HEAR ARCH

Spring 2005

A design experiment seeking to answer the question; 'can architecture manufacture a pre-calculated perception?'

Supervised as two independent studies – an architectural one and a psychological one – by Professor Rajkovich and Professor Krumhansl, respectively

Architectural Timbre

Spring 2004

A thesis presenting architecture as a medium of the performing arts

- Thesis Advisors: AE Sonn Palmer, Ana deBrea

BOOK

Thirteen Ways of Looking at Architectural Theory, Cognella Academic Press 2014
<https://titles.cognella.com/13-ways-of-looking-at-architectural-theory-9781621312307>

SKILLS

Developing creative solutions for challenging problems and orchestrating collaborative thought processes to affect positive change

Teaching students to achieve international design successes (over a dozen have been recognized through national/international design awards)

Public speaking to both general and specialist audiences exceeding one hundred attendees

Working efficiently with multimedia presentation tools, design software, Microsoft and Adobe Suite

Conscientious decision-making through critical scenarios in the profession

HOBBIES

Running, hiking, biking, camping, playing didgeridoo, saxophone, guitar, ukulele and more, traveling

with family, chilling with the dog, photographing HotWheels ☺

REFERENCES

Available upon request.

glenn.nowak@unlv.edu

or

gnpnphoto@gmail.com