



Elements & Impacts of Casino Design

AGRI: Critical Issues in Gambling Research 2015 Conference

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evidence-based design

A new direction for health care BY LYNN WEBSTER & CLAUDIA STEINKE

With all the challenges facing designers today, it is becoming increasingly difficult to incorporate, address and design for the various needs of multiple users in highly complex buildings. In the area of health care design, approaches applied in the past no longer adequately address the unprecedented challenges of the future. These challenges include an aging population and workforce, labour shortage, high incidences of workplace injury and increasing absenteeism.

Designers understand a building's physical design can have a positive or adverse effect on the facility's ability to respond to these challenges. In looking to the future, evidence-based design presents the opportunity to strategically inform design and assist in addressing these issues.

Traditionally, evidence-based design has been applied in measuring the success of a design. It is typically carried out at the post-construction stage and referred to as part of a post-occupancy evaluation. This approach provides substantiated evidence of the effectiveness and, alternatively, weaknesses of design decisions as they relate to the human experience of the environment.

the case for research

Health care facilities are costly to build and operate. Their design influences performance, which is critical to both staff and patient outcomes. For these reasons, the move to evidence-based design with its focus on evidence based research is especially relevant to health care design.

Innovative research techniques, such as time use analysis, direct and participant observation, service blueprinting and photography, are utilized to supplement traditional design research methods, including surveys, focus groups and stakeholder interviews. The collected data is then analyzed, interpreted and filtered into the design process with the goal to improve outcomes in health care, such as staff and patient outcomes, operational efficiencies as well as the recruitment and retention of staff. The physical design of health care facilities has a significant and often unrealized potential in working to address some of the major issues in health care. For example, increasing rates of hospital acquired infection and high turnover rates.

the financial impact of evidence-based design

The financial impact of evidence-based design initiatives on operational costs in health care has been well documented by Texas A&M University professor of marketing, Leonard Berry. Calgary-based Cohos Evamy integratedesign has expanded on Leonard Berry's list of financial indicators and is working to adapt the baseline figures to serve health care facilities in Canada.

Quite simply, by designing space that promotes well-being, shortens patient stays, reduces the incidence of infection and minimizes stress in the work environment, hundreds of thousands of dollars can be saved. This alone is enough to make the business case for research and design innovation in health care design.



a holistic methodology for conducting performance evaluations

So how does one know if the design innovations in fact actually improve performance and achieve an

In an effort to verify evidence-based design's structured projects, Alberta Infrastructure hired Cohos Evamy to develop an evaluation methodology. The resulting Performance Evaluation Methodology, was a process of measuring return on investment utilizing the balanced scorecard approach. With the approval of the province, this methodology will be applied on several future projects. The eventual goal is to have a collection of information from a large number of Alberta health care facilities to be shared.

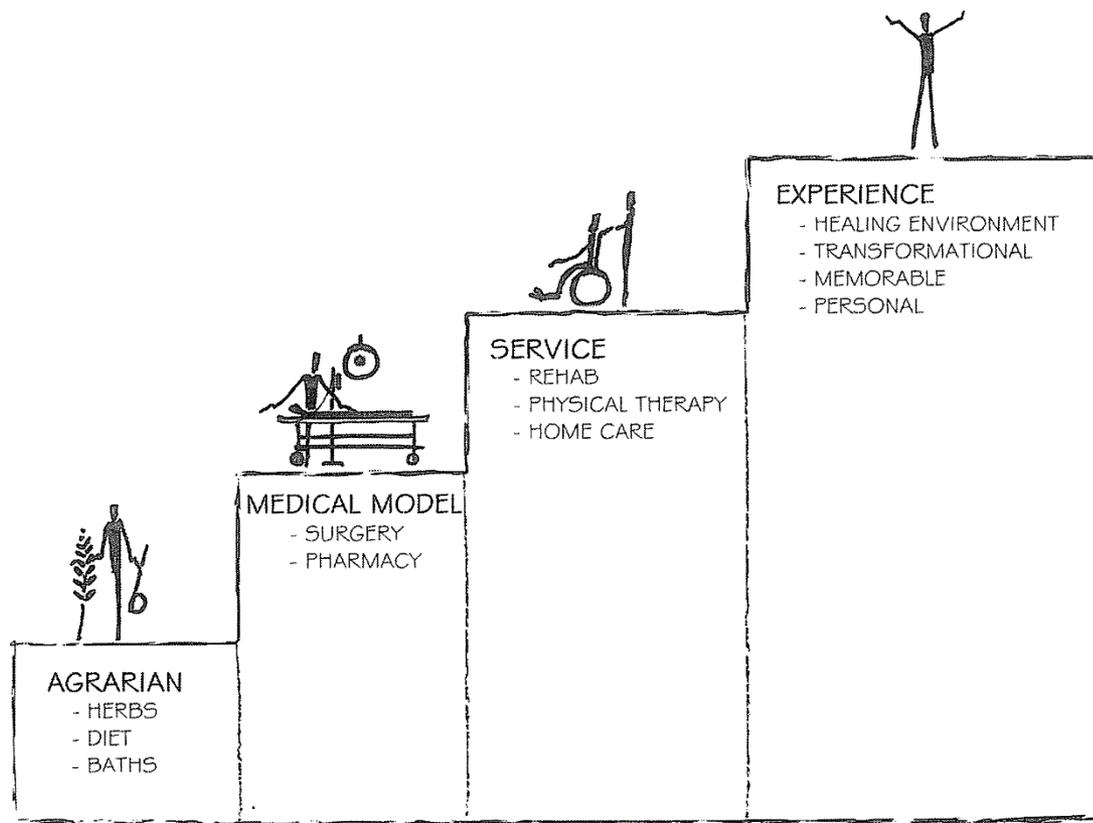
In this methodology, Cohos Evamy has developed a performance framework with a built-in tracking tool that links assets to strategic outcomes. This multi-dimensional framework introduces four management performances — employees, customers, finances, and the environment — in a balanced combination of short-term actions to long-term strategic objectives. The methodology is not only a measurement system but a management tool that enables organizations to clarify their vision and strategy and translate them into action. This methodology is now being implemented in Ontario.

In addition to its incorporation of evidence-based design into its design process, Cohos Evamy has developed an evidence-based research process. This process promotes meaningful collaboration between the design disciplines and clients, resulting in high quality designs and improved building performance. Research conducted at the pre-design, mid-design, and post-design phases.

Lynn Webster is a registered architect and principal at Cohos Evamy integratedesign, which is committed to applying evidence-based design. Claudia Steinke, RN, B.Sc., (NSG.), M.Sc. (Mgt.), Ph.D., is the firm's research lead.

- Evidence-Based Design:** a field of study emphasizing credible evidence to influence design. This approach has become popular in health care to improve patient and staff well-being, patient healing, stress reduction and safety. Evidence-based design is a relatively new field, borrowing terminology and ideas from disciplines such as environmental psychology, architecture, neuroscience and behavioral economics.

- Center for Health Design**
 Envisions a world where every hospital, health clinic, treatment center, doctor's office is designed to improve both the quality of care and outcomes for patients, residents and staff.



The Experiential Environment

The move from the *service level* to the *experiential level* where *patient's expectations exceed* both the medical model and service levels of care.

Source: Huelat, B. (2007). Healing Environments: What's the Proof? Arlington, VA: Peecapress.



Image Source: <http://modernmixvancouver.com/2011/11/16/river-rock-casino-mtv-giveaway-for-the-buffet/>

CASINO DESIGN

research + knowledge

There appears to be ***limited empirical research*** however on whether gambling behaviour is actually altered as a function of gambling venue design, and whether these things promote or prohibit responsible gambling behavior.

Two possibilities exist.

1. Industry initiated research has established the impacts of these features but is either **unpublished or contained in industry-specific forums** that are not typically accessed by the usual academic search engines.

2. Limited empirical evidence exists and that personal experience, beliefs, and tradition are the basis for this uniformity in gambling design. This is not to suggest that these beliefs are totally unfounded, as there does exist a wider academic literature showing that environmental design can be quite important in influencing behavior.

THE ISSUE

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Purpose:

- To conduct an exploratory study to assess the research that currently exists that identifies the ***elements and impacts of gambling venue design***.

Importance:

- Billions are spent on casinos each year.
- Billions are spent on gambling each year.
- Government legislation; guidelines for design.
- Health and well-being.

Questions:

- What and where is the evidence that supports gambling venue design?
- How is design measured?
- How do we promote **responsible gambling venue design**?

OBJECTIVE

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Phase 1

- Searched five main gambling-specific databases
 - Australian Gaming Council's eLibrary
 - Gambling Research Australia's Gambling Research Database
 - AGRI DSPACE Repository @ the University of Calgary
 - Gambling Research Database
 - Problem Gambling Library (New Zealand)

Phase 2

- Searched traditional databases
 - ABI/INFORM Global
 - Academic Search Complete
 - Business Source Premier
 - Cochrane Database of Systematic Reviews
 - DARE (EBM Reviews)
 - Emerald Insight
 - Google Scholar
 - Medline
 - Proquest
 - PsycINFO
 - Science Direct
 - Sociological Abstracts
 - Web of Science.

METHODOLOGY

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Gambling Venue Specific	Non-Gambling Venue Specific	Implications for Gambling Venue Design
Location	United Kingdom	
Year	2007	
Type of Publication	Empirical	
Publication	Dixon, L., Trigg, R., & Griffiths, M. (2007). An empirical investigation of music and gambling behaviour. <i>International Gambling Studies</i> , 7(3), 315-326.	
Keywords	Music, structural characteristics, situational characteristics, gambling behavior.	
Objective(s)	To assess the effect of fast and slow background music on gambling behaviour.	
Background	Sounds may make wins more salient and more memorable. More research has been done regarding music in other commercial contexts. Fast tempo music encouraged shoppers to move more quickly, and they spent less when exposed to slow tempo music.	
Hypothesis	It is predicted that fast tempo music might encourage quicker gambling and possibly discourage deliberation over financial losses, prevent a 'cool down period' allowing arousal levels to return to normal, and promote risk-taking through a lack of attentive play.	
Research Design	Virtual roulette game and monitoring play.	
Setting	Virtual roulette game in laboratory.	
Sample	n=60 students from an East Midland university students.	
Method	Participants were allocated to one of the three conditions (no music, slow tempo music and fast music). Ten games of roulette were played. Speed of betting, amount spent across high, medium and low-level risk bets and total amount spent were recorded. Preference for the musical condition and perceived notion that the tempo of music influenced concentration were also noted. 10 games were played, and the player with the most money won a non-monetary prize.	
Measures	Speed of betting; amount spent across high, medium and low-level risk bets; total amount spent; preference for the tempo of music; awareness that the tempo influenced concentration during betting.	
Instrument	Virtual roulette game from an online Internet site, questionnaire	
Analysis	Statistical analysis, analysis of variance.	
Findings	Faster betting speed occurred while listening to higher tempo music.	
Limitations	This study had participants participating in the presence of other participants and online games are usually solitary. Used virtual roulette game, which may be novel to some participants resulting in arousal. Arousal may not have been because of music.	
Future Research	There is need to establish whether some structural characteristics play larger roles in facilitating gambling behaviour. Study the effects of music in relation to isolated gambling and in the presence of others. Use a longer familiarization period where participants become more accustomed to the game.	
Implications for Gambling Venues	The environment can influence addictive behaviours. Treatment could encourage problem gamblers to avoid gambling environments with certain characteristics. Casinos could use high tempo music to increase the betting speed of their patrons.	



Image Source: <http://modernmixvancouver.com/2011/11/16/river-rock-casino-mtv-giveaway-for-the-buffet/>

FINDINGS

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Friedman's Gaming Design

- Functionality is the most important aspect with the machines and tables forming the dominant aspect of the décor.
- Low ceilings.
- Few adornments.
- No signage above the machines.
- Maze like structure with secluded gambling areas.
- Floor divided into small, compact gambling areas with short pathways, twists and turns.
- Monotone color scheme reduces restoration and increases irresponsible gambling intentions (Finlay et al., 2007, 2008).

Krane's Playground Design

- Focus is on a pleasurable, stimulating environment.
- Spacious with high ceilings.
- Uncluttered layout of tables and machines.
- Natural elements (vegetation, water) which induces a positive effect.
- Features include sunlight, green space, and moving water that induce security, pleasure, freedom, vitality.
- Results in higher levels of environmental pleasure, arousal, restoration, attention and provides less information to process than the Friedman design (Kane et al., 2006, 2007, 2008).



The positioning and layout of gaming machines has largely been studied in the context of industry aiming to *increase* gambling expenditure (e.g. Lucas & Dunn, 2005).

- Lucas and Dunn (2005) identify those machines that are close to major thoroughfares or walkways attract greater expenditure due to **increased foot traffic**.
- Those that are at the **end of the row attract higher spends**, and Lucas and Dunn (2005) suggest this is due to their **ease of access and visibility**.
- Casino managers are encouraged to position machines in a way that produces the highest number of end machines that only have one neighbouring machine (e.g. 2 rows of 4 rather than 1 row of 8) and to **maximize the number of walkways** by **positioning key facilities** at greater distance (e.g. parking lot entrances, food and beverage, toilets etc.).
- In addition, **machines under a higher ceiling** were also found to produce higher spends than those under lower ceilings (45 foot ceiling versus 12 foot ceiling).

Lighting is a **micro-design element** of gambling venue design that has not been thoroughly studied in isolation.

- Stark, Saunders and Wookey (1982) examined the effects of blue and red lighting on **gambling frequency and risk taking**, with **red light shown to increase both measures** compared to blue lighting. Gambled more money, more often, and selected riskier odds than those exposed to blue light (Stark et al., 1982).
- Finlay et al. (2007a) and Peller et al. (2008) also found that **flashing lighting increases irresponsible gambling intentions and disordered gambling**. Flashing lights produce a higher information load which is then a deterrent to responsible gambling (Finlay, 2010).
- **Red light with fast tempo music produces faster betting speed** (Spewyn et al., 2010).
- **Regulation of lighting standards is difficult** within many jurisdictions as competing requirements, such as limits on the visibility of the gaming area from outside a venue, reduces the ability to have natural light in gaming areas. When combined with issues around glare on the EGM screen, lighting levels are lower in gaming areas than would be ideal.

INTERACTION



Gambling behaviour is affected by social facilitation and interaction with others is a significant factor in gambling behaviour. Rock Dyer (2007) conducted a study that found that when participants were provided with fake information on the winning performance of others (winning bells, instant messages), they bet and lost more money than when no such information was provided.

WAYFINDIN



- Clear signs are important to know how to find betting opportunities and facilities (Cockrill et al., 2008).
- Many signs and brochures are provided to encourage responsible gambling but there is no research on the effectiveness of such signs (Hing & Dickerson, 2002).

- Increased at-risk gambling intentions in playground design and decreased for gaming design (Marmurek et al., 2007).
- Faster betting speed under high tempo music (Dixon et al., 2007; Spenwyn et al., 2010).
 - Less time to contemplate stopping. Larger profit for casino.
- Predicted that gambling environments without music limit arousal, focus on losses and lower concentration levels (Griffiths & Parke, 2005).
- Sedative music exposed to gamblers result in longer gambling times compared to stimulative music (Leamen, 2008).
- Supermarket Setting (Milliman, 1982).
 - Fast tempo music increased average gross sales.
 - Slow tempo music slowed in-store traffic
- Music influences estimates of waiting time depending on familiarity and tasks given (Bailey & Areni, 2006).



Image Source: <http://modernmixvancouver.com/2011/11/16/river-rock-casino-mmv-giveaway-for-the-buffet/>

DISCUSSION

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- Natural versus laboratory setting
- Motivation
- Self-reported measures
- Individual/patron perspective
- Generalizability
- Subjects
- Sampling methods



Image Source: <http://modernmixvancouver.com/2011/11/16/river-rock-casino-mtv-giveaway-for-the-buffet/>

LIMITATIONS

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- 
- **A Framework for Thinking**
Through research, education, advocacy and technical support.

- **Integrate**

Integrate the evidence into what we do so we can make intelligent design decisions.

- **Evidence Based Decision Making**
The findings will serve to inform the public, casinos owners and administrators, architects, interior designers, building contractors, gambling and non-gambling guests of casinos, public policy and government regulation.

Image Source: <http://modernmixvancouver.com/2011/11/16/river-rock-casino-mmvc-giveaway-for-the-buffet/>

IMPLICATIONS

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Outcomes based

- **A theory of “*Responsible Gambling Venue Design*”**

- **Measurement**

The importance of measuring casino environments and what we do with that information. What are the best measures of casino design impacts good and bad? And at what level – at individual or organizational level of analysis?

- **Business Strategy**

Tailoring strategy to business performance.
Pre and post evaluation.
Data driven operational planning.

- **A Catalyst for Change**

Through research, education, advocacy and technical assistance, a center for casino design could support casino owners, gambling researchers and design professionals all over the world in their quest to improve the quality of gambling venues through evidence-based building design.

- **Design Standards**

Developing architectural design standards/guidelines for gambling venues/casinos.

FUTURE DIRECTIONS & RESEARCH

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Image Source: <http://modernmixvancouver.com/2011/11/10/ivier-rock-casino-minu-giveaway-for-the-buffet/>