

# The Physical and Psychological Measurement of Gambling Environments

Final Report to OPGRC

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## **Abstract**

This research examined the influence of the design of gambling venues on problem gambling behaviour. Two competing views of effective casino design were identified. According to the "playground" design (Kranes, 1995), casino design features should include elements that induce security, intimacy, freedom and vitality. For example, warm colours, green space and moving water would enhance the appeal of a casino. In such a casino, one could envisage spending a lot of time gambling because it feels comfortable and healing. In contrast, Friedman (2000) has collated a set of design principles that are intended to yield high player counts. Successful casinos, according to Friedman, highlight the gaming equipment as the dominant decorative feature. A maze layout and low ceilings are intended to promote a focus on gambling. We categorized casinos according to their design (Kranes, Friedman, mixed, e.g. Casino Niagara) and, in a pilot test, measured emotional reactions of respondents to the various designs. Kranes- type casinos yielded higher ratings on pleasure, restoration (relief from stress) and control. Friedman-type casinos led to higher estimates of arousal.

To establish a stimulus set amenable to experimental manipulation, we created videotape renderings of prototypical casinos designed according to the competing sets of principles. The validity of those renderings was confirmed by Kranes. One potentially significant additional variable that distinguishes the casinos is the amount of information to be processed in the environment. Respondents rated the Kranes videotape higher on information rate than they did the Friedman and mixed/Casino Niagara designs. Moreover, ratings of intention to gamble were lower for the Kranes-prototype video than for the Friedman- and mixed/Casino Niagara-prototype video. In some conditions, we substituted a music soundtrack in the videos for the

natural soundtrack taken inside the casinos. The music soundtrack increased estimates of information present in the environment for the Kranes-prototype video, but lowered estimates for the Friedman-prototype. A critical implication is that the impact of introducing a design change will depend on the existing macro design. More importantly, changes in design that alter information rate impact directly on estimates of intention to gamble. Specifically, as information rate increased, the intention to gamble increased for each of the prototypical designs. Thus, introduction of design elements intended to influence the rate of gambling must be tempered by an analysis of the casino's design category and specific macro design elements. What is clear, however, is that we have discovered that we can modify an individual's intention to gamble either by altering information rate or by changing restorative feeling (the extent to which one feels psychologically rejuvenated in a setting).

These effects hold for all types gamblers (those under low and moderate risk, as well as problem gamblers). According to the findings of this study, moderate risk and problem gamblers are devoting large portions of their income annually to gambling. Casino design changes involving perceived information rate have the potential to influence the psychological pressures on these individuals and reduce the intention to gamble.

## **Literature Review**

This research begins to identify the aspects of the physical environment of gambling venues that elicit emotional responses mediating gambling behaviour. It was hypothesized that different types of gambling venues could be characterized by a set of physical and psychological features. In order to differentiate settings on physical and emotional dimensions, concepts were

consulted from environmental psychology, architectural psychology, social psychology and consumer behaviour. We identified two macro competing theories of casino design related to the emotions they elicit within gambling environments. Although well known in the commercial gambling community (Bill Eadington, Institute for the Study of Gambling and Commercial Gaming at the University of Nevada, Reno; Willis Calder and Donald McGhie, McGhie Consultants, Reno), no empirical testing has been conducted for either of the design approaches.

**Kranes Design Approach.** The first approach is based on Kranes' (1995) conceptualization of casinos as playgrounds, as places where the activity (playing) should be conducted in an environment that is inviting and energizing, stimulating curiosity and exploration. Kranes proposes that appealing casinos will be related to design elements that are pleasureably "legible" (instantly recognizable), inducing senses of order, freedom, and vitality. He argues that humans seek spaces in which they feel centered and at home; spaces which empower, feel more rewarding, secure, natural and intimate. Humans feel vital in an identifiable environment, thriving on sunlight, warm colours, the presence of accessible green space and moving water

**Friedman Design Approach.** Friedman proposes that the design of a casino is related to player counts and functionality. Friedman's perspective is summarized in what he calls "The Thirteen Winning Design Principles" (Friedman 2000) which include, but are not limited to, the following: gambling equipment should be the dominant decorative feature in a casino, and décor should be used only to highlight and enhance the equipment layout; interior décor that is impressive, imposing or memorable distracts from the gambling equipment; a maze layout of slot

machines is better than long, wide, straight passageways and aisles since mazes produce secluded, intimate gambling areas; and low ceilings have little space between the tops of the gambling equipment and the ceiling, creating a sense of intimacy and a focus on gambling.

Although both Kranes and Friedman advance their designs as ones conducive to promoting gambling activity, the Kranes' design was predicted in this research to be a setting where attentional fatigue and or psychological stress would be lower. The Kranes' environment was felt to contain elements that elicit positive emotions, restrict negative thoughts, and maintain physiological arousal at moderate levels. A therapeutic response was expected to be generated by the inclusion of vegetation and water elements, moderate depth and complexity and the presence of a focal point in a determined scenario. Consequently, it was expected that the intent to gamble and gambling intensity would be inherently lower in a casino designed according to Kranes' guidelines.

Kranes' and Friedman's theories of casino design can be thought of as two ends of a continuum. A given venue can contain areas which better correspond to the one or the other theory of design. For the purposes of the current research, we were interested in testing the two ends of the continuum as well as a hybrid design containing elements of both.

### **Stage One**

Stage one of the research was designed to determine whether these two opposing views of casino design elicited different emotional responses in visitors. The first step entailed the development by the researchers of a set of scales sourced largely from the architectural and

environmental psychology literatures to differentiate the physical space of various gambling venues in terms of their physical, emotional, social, visual, auditory and meta-cognitive dimensions. A questionnaire was developed to measure constructs potentially relevant to differentiate gambling venues along these dimensions. First, a set of open-ended questions was included to identify top-of-mind mentions related to perceived impressions, memorable images and physical characteristics of each gambling venue. Next the questionnaire contained a set of scales to measure the emotional and psychological impact the environment had for the respondent. The following measures were included and the complete questionnaire is provided in Appendix 1:

- Mehrabian and Russell's (1996) dimensions of pleasure, arousal and dominance (PAD). The PAD section asked the respondent to rate the venue based on twenty-two 7 point ratioscales ranging from -3 to +3 with 0 as the midpoint; end point labels are items such as pleased/annoyed (pleasure), calm/excited (arousal) and free/confined (dominance).
- the information rate of the environments (the amount of information that must be processed in a setting (Mehrabian & Russell 1974). Endpoints (ranging from -3 to +3 aggregated over the 13 items of the scale) on these rating scales were items such as simple/complex and usual/surprising.
- the restorative ability of environments (potential to relieve attentional fatigue and psychological stress, McKechnie, 1977). For this item, respondents were asked to assess how strongly they agreed with statements such as “This place is a refuge from unwanted distractions.” and “Spending time here gives me a break from my day-to-day routine.”

- A deindividuation scale adapted to a gambling setting examining context factors that motivate individuals to behave outside of societal norms (Zimbardo 1969)
- A scale of Friedman/Kranes descriptors to differentiate between the two sets of design principles, developed by the authors, with endpoints such as relaxed/tense and uncluttered/cluttered.
- the Canadian Problem Gambling Index (Ferris and Wynne, 2001) and demographic and socioeconomic measures.

A total of 114 respondents were recruited on a convenience basis and asked to rate 16 casinos in Nevada, 6 casinos in Ontario, 4 Ontario racetracks with slots and 2 Alberta casinos. Of particular interest was determining whether casinos rated high by Friedman's design principles and casinos conforming to Kranes' design were differentiated in terms of the key psychological dimensions. Since Friedman (2000) has rated every casino in Las Vegas according to the extent to which they conform to his 13 principles, we chose 3 casinos he rated highly in this regard (Riviera, Imperial Palace and Circus Circus) to represent his favoured design. The choice of the casinos to represent Kranes' design (Bellagio, Mirage, Mandalay Bay) was based on a meeting with David Kranes in Las Vegas, at which time he both informed us that these venues were more representative of his view of casino design, and gave the research team a tour of casinos pointing out appealing design elements.

Respondents visiting Kranes-type venues had a more pleasurable visit and felt more in control of the situation. On the other hand, inside Friedman-type venues, respondents felt more aroused and dominated, and the visit was a less pleasurable experience. Kranes-type casinos

were significantly more likely to have restorative ability, relieving psychological stress (see Table 1 below). Consequently, our prediction was supported.

Table 1 - Stage One Dependent Measures by Venue Type  
n=114

	Pleasure	Arousal	Dominance	Information Rate	Restorativeness
Kranes	1.59	0.13	0.25	1.64	5.11
Friedman	-1.17	0.74	-0.23	10.64	2.42
Hybrid (Ontario)	0.35	0.54	.09	1.15	3.72

### Conclusions – Stage One

Although Kranes’ and Friedman’s approaches were not previously tested empirically, both have been applied in casino design at multiple locations worldwide. Stage One of the research uncovered preliminary evidence that each design approach induces different emotional and psychological reactions among casino visitors. Application of each of these designs has a direct impact on the restorative ability of the venue environment. Venues with high loads of environmental information (as in the case of Friedman-type designs) appear to reduce the restorative ability of the space. This can be linked back to a feeling of unpleasantness among respondents.

Pleasure, arousal and dominance vary according to different settings and environments. These differences are evident between the two approaches described above. While Kranes-type

venues are more pleasant and less dominant to the respondent, Friedman-type venues are generally less pleasant, raise levels of arousal and increase the feeling of being dominated.

For problem gamblers, the frenzy enhanced by a Friedman-designed venue is expected to enhance gambling intensity and increase the propensity of problem gambling behaviour. The opposite may be true for Kranes-designed venues if design elements engender a greater sense of psychological well-being as appears to be the case based on Stage 1 of the research.

Ontario casinos cannot be clearly identified with either of the two approaches. They tend to provide a mix of elements from both approaches; that is, they combine water and vegetation in open and clear areas with machine mazes in mirrored, cramped, low ceiling areas. A clear example of this combination is provided by the design of Casino Niagara at the time of this research, where you can find an area such as “The Courtyard” where ceilings are high, with decorative elements present (simulated windows, greenery), pleasant audible music and wide-open expanses between gambling areas. A few steps away, the slot machine area is darker, with lower mirrored ceilings, multi-coloured flashing lights, noise (not music) and with equipment crowded together. Only Casino Rama and Casino Lac Leamy (in Hull, near Ottawa) are based more consistently on Kranes’ perspective of design.

## **Stage Two**

Based on these differences at the macro level, a simulation of a Kranes-type casino and a Friedman-type casino were rendered from video taken by the researchers when visiting various casinos in Las Vegas (note that cameras are not permitted inside Ontario venues). A version was developed to be representative of Casino Niagara in Ontario, which included both Friedman-like

and Kranes-like design elements. A validity check assessing our correct execution of the Kranes and Friedman designs was provided by David Kranes (Appendix 2). For each of these three video simulations (Kranes, Friedman, Ontario) a second simulation was also produced which removed the natural sound of the casino (voices, machine noise) and replaced it with a relatively familiar music soundtrack. This music was chosen with the aid of the video editors to have a sense of recognizability, while being novel, of moderate tempo, and pleasantly harmonic and melodic. This manipulation was designed to test the effect on casino visitors of a lower information rate in the three settings. Video simulations of a bingo hall and racetrack were also produced and will be discussed in a later section of this report.

Due to regulations of the Ontario Lottery and Gaming Corporation and those of individual casinos, we are unable to conduct research measuring environmental design effects in gambling venues in Ontario. We expect that the patterns we find using simulations will **underestimate** the true effects of a real-life casino. While the videos may lack some of the richness of the in situ environment, we are confident that a simulated scenario will capture the psychologically relevant processes (Bornstein, 1999). Stamps (1990) reported a meta-analysis of literature on how well preferences for photographs of environments correlate with preferences of environments. Across 1300 studies, he found an overall correlation of 86% between preferences obtained in situ and preferences obtained through photographs. Video simulations are judged a step closer to reality than photographs. Furthermore, they are economical, feasible and provide a reliable and valid approximation of the effects of the variables under study. (Blomqvist, Luhtanen, Laakso, Keskinen, 2000; Rohrman and Bishop 2002).

Subjects (n=101) for the final study were recruited from three cities in Ontario in which casinos are located or are nearby (Niagara Falls, Ottawa and Guelph). Signs were posted near casinos, in shopping malls, and at bars and restaurants. The signs encouraged individuals who liked gambling to contact the researcher and participate in a study on gambling. An amount of \$30 was paid respondents for their participation. Each respondent viewed a randomly selected 4 of the 8 simulated venue videos, resulting in a viewing sample of ~50 observations per video, or an overall number of 404 observations. Exposure was based on a randomized block design, such that all videos were seen the same number of times in each of the first, second and third positions in the set. After exposure to each video, the following measures were collected (complete questionnaire contained in Appendix 3): pleasure, arousal, dominance, information rate (all previous measured on a -3 to +3 scale, restorative rate (1 to 7 scale), deindividuation (1 to 7 scale), gambling intention (1 to 7 scale), as well as ratings on basic descriptors of casino design. Once data on three videos were collected, subjects completed a booklet containing information on their gambling behaviour (frequency of visits to gambling venues, amount spent on last visit, time spent on last visit, favourite forms of gambling, as well as basic demographic information.

**Sample Composition** Appendix 4, Table 2 provides demographic breakouts of the sample. It was anticipated that it would be difficult to obtain respondents scoring high on the CPGI scale. This was in fact not the case. The breakout across the 4 levels of the CPGI was 7 non-problem gamblers, 13 low risk gamblers, 38 moderate risk gamblers and 43 problem gamblers. A data set of respondents was retained to be re-contacted as appropriate for future studies on problem gambling. The sample was chosen to be non-representative of the general Ontario population, but rather, quotas of gambler types across the spectrum of the CPGI were sought, but with

particular emphasis on problem gamblers who may have a unique response to environmental variables versus others. Consequently by design, problem gamblers were over-sampled and non-problem gamblers significantly under-represented. Almost half of the sample was under the age of 35, and just over half (56%) were male. Forty percent were single, 30% married and another 18% divorced. Fifty percent held only a high school education and 50% earned a household income of \$45,000 or less (21% were under \$25,000). While lower income individuals may have been attracted by the \$30 respondent payment, targeting problem gamblers appears to have attracted many at lower income levels. A CPGI by Income level crosstabs was significant for the current data set (Chi-squared = 90.6,  $p < .00$ , Table 3 below). For this analysis, income was broken into four levels: Level 1  $< \$25,000$ ; Level 2  $\$25,000-45,000$ ; Level 3  $\$45,000-75,000$  and Level 4  $> \$75,000$ .

Table 3 - Crosstabs Income by CPGI Levels (Actual /Expected Number per Cell)  
n=101 subjects

	Income Level 1 $< \$25,000$ (n=37)	Income Level 2 $\$25-45,000$ (n=25)	Income Level 3 $\$45-75,000$ (n=20)	Income Level 4 $> \$75,000$ (n=19)
CPGI No Problem (n=7)	0/2.6	2/1.7	3/1.4	2/1.3
Low Risk (n=13)	2/4.8	3/3.2	3/2.6	5/2.4
Moderate Risk (n=38)	11/13.9	10/9.4	9/7.5	8/7.1
Problem Gambler (n=43)	24/15.8	10/10.7	5/8.6	4/8.5

Hig

her incidence of the top income levels resulted than expected among those scoring lower in problem gambling, particularly among those at low or no risk. On the other hand, respondents with a gambling problem had much lower income levels than expected. Only half as many respondents earning in excess of \$45,000 were problem gamblers versus those expected to fall

into this category based on independent sample characteristics (9 actual versus 18 expected) In this study problem gamblers tended to be earning less than \$25,000 (24 actual versus 16 expected based on Income and CPGI sample composition).

Problem gambling, as measured by the CPGI, was also examined with respect to the extent to which respondents frequented different types of gambling venues. Problem gamblers were less likely than expected based on the sample composition to play bingo (24 actual versus 27.2 expected, overall Chi-squared = 3.10,  $p < .000$ ), less likely to go to the races (16 actual versus 22.6 expected, overall Chi-squared = 2.69,  $p < .00$ ) and frequented casinos more than expected. Among problem gamblers, 18 (42% of all problem gamblers in the study) said they visited casinos 30 or more times a year (2.5 times a month) versus an expected number of 13 problem gamblers based on sample composition for these variables, overall Chi-square = 73.4,  $< .00$ ).

Based on respondents' indication of their income level, their amount spent during their last casino visit and their estimate of the number of casino trips per year, a rough calculation was made of the % of income spent on gambling by individuals earning different levels of income.

Table 4 - Percent of Income Wagered by Level of Income  
n=101 subjects

Income Level	Mean Income	Annual Bet	%
> \$75,000	101,000	1227	1.2%
\$45-75,000	64,200	926	1.4%
\$25-45,000	40,600	744	1.8%
<\$25,000	16,000	2185	13.6%

Individuals earning less than \$25,000 per year may be wagering as much as 13.6% of their income at casinos. All percentages are much higher than those reported by Carey (2003) for those earning more than \$80,000 (0.4% of income) and those earning less than \$20,000 per year (1.6% of household income).

In order to understand how this relates to problem gambling, the same form of analysis was completed dividing respondents into the four CPGI categories. Based on our estimations, problem gamblers earning less than \$25,000 may in some cases be wagering as much as 14.1% of their income at casinos, while those earning \$25-45,000 might be at a level of 7.5% of income (Table 5a below).

Table 5a - Percent of Income Wagered by Level of Income and CPGI Category  
n=101 subjects

Income Level	Non Problem	Low Risk	Moderate Risk	Problem Gambler
> \$75,000	-	0.7%	2.3%	0.8%
\$45-75,000	-	0.5%	1.7%	2.4%
\$25-45,000	-	0.5%	0.6%	7.5%
<\$25,000	0.8%	0.2%	9.1%	14.1%

Of added concern is that moderate risk gamblers (who qualify by scoring a sum of 3-7 on the CPGI scale) also appear to be spending high proportions of income on gambling, both whether they are high or low income earners.

This analysis informs current and future research by contributing to an understanding of groups most at risk, and permitting direct examination in the psychological effects of casino design on these individuals in particular.

**Analysis.** Scale purification resulted in specific items being removed from scales that were less consistent measures of given variables (Table 6, Appendix 4). Inter-item consistency (coefficient alpha) across the reliable scales varied from .82 to .92; the only scale for which inter-item consistency was a problem was dominance. No purification techniques were able to increase this value. Interpretations regarding dominance must therefore be made with caution. It may be that dominance is not a variable that reliably differentiates casino venues in terms of design.

Since the deindividuation scale contained measurement items judged key to identifying problem gambling, not as a individual difference variable like the CPGI, but related to each specific venue portrayed in the videos, a separate outcome scale conceptualized as “gambling intention by venue” was comprised from the following items for use in the current analysis: “I would probably gamble more than I intended in this place”; “I would get drawn into other types of games I didn’t intend to play at this place”; “I would probably bet more than I wanted at this place”; “I would have an uncontrollable urge to bet a lot of money at this place”; “ I would probably have trouble quitting without placing one more bet at this place” (Appendix 3). This variable achieved a coefficient alpha of .78, and was judged a reliable measure of the intent of a respondent to gamble. It will be included in the analysis that follows.

There was no significant difference for each of the 8 videos in the proportion viewing that video by the incidence of problem gambling as measured by the 4 categories of the CPGI

(Chi-squared = 7.94,  $p < .99$ ). Random assignment to cells therefore appears to have eliminated any differences due to gambling activity alone.

Isolating the data from the 6 casino videos, the main effect of a number of psychological dimensions can be analysed by isolating the 3-level design factor (Kranes, Friedman, Ontario) and the 2-level information rate variable (no music, music). Using Analysis of Variance (ANOVA), the main effect of video on information rate approached significance ( $F(2,297) = 1.21$ ,  $p < .077$ , Table 7, Appendix 4) and the main effect of video on restorative rate was significant ( $F(2,297) = 18.58$ ,  $p < .05$ ). The main effect of information rate approached significance for restorativeness ( $F(2,297) = 6.14$ ,  $p < .13$ ). All interactions across dependent variables were either significant or approached significance (Table 7, Appendix 4). These relationships are discussed below.

Familiar music was expected to decrease the overall rate of information content that needed to be processed in the situation versus that which is normally present in each respective gambling environment. In a situation where slot machine noise, general gaming noise, and gambler responses are present, the substitution of music that is somewhat familiar and leisurely paced was expected to reduce the amount of information that had to be processed in the gambling setting. Consequently, individuals should perceive less frenzy and stress in the environment and the intention to gamble should be reduced. As Table 5b below and Table 8 (Appendix 4) indicate, music increased information rate directionally and gambling intentions significantly in the Kranes-designed casino (information rate: 0.55 to 0.89; gambling intentions 3.61 to 3.98, latter  $F(2,297) = 3.70$ ,  $p < .06$ ), while, as expected, it decreased information

directionally (-0.32 to -0.49) and gambling intentions (3.95 to 3.48, latter  $F(2,297)=2.71, p<.10$ ) in both the Friedman-designed casino and the Ontario venue. This interaction between macro casino design and micro information rate had not been expected, but significantly enlightens our understanding of the influence of these variables in a gambling environment.

Table 5b  
MEAN Information Rate and Intention to Gamble by Condition  
n=404 observations

	Design →	Kranes Design	Friedman Design	Ontario (Mixed)	Combined
Baseline (Original Sound)	Information Rate	.55	-.49	-.15	-.32
	Intention to Gamble	3.61	3.88	4.02	3.95
Music Audio	Information Rate	.89	-.73	-.24	-.49
	Intention to Gamble	3.98	3.51	3.45	3.48
Total sample	Information Rate	.72	-.61	-.19	
	Intention to Gamble	3.79	3.69	3.73	

Notes:

Information rate measured on -3 to +3 scale

Intention to Gamble measured on 1 to 7 scale:

- “ would gamble more money than intended in at this place”
- “ would get drawn into other types of games I didn’t intend to play at this place”
- “ would have an uncontrollable urge to bet a lot of money at this place”
- “ would have trouble quitting without placing one more bet at this place”
- “ would probably play more than wanted to at this place”

Kranes initially has more visual and sensory information to perceive, hence the Kranes original video scored higher on information rate (.55) than Friedman (-.49) or Ontario (-.15). The difference between Kranes and the other two videos was significant at  $t=3.41, p<.00$  (Table 10, Appendix 4). Despite this, the Kranes original video simulation was rated highest of all on pleasure felt in the environment (.72 on a -3 to +3 scale) versus .18 for all the other videos combined ( $t=2.19, p<.03$ , Table 10, Appendix 4).. The Kranes (ambient noise) video had the

highest potential to relieve attentional fatigue and psychological stress (restorative rate) at 4.82 on a 7-pt. scale versus 4.44 for the other options ( $t=1.65$ ,  $p<.10$ ). It also had the lowest intention to gamble in its original form (with natural casino noise) versus Friedman and Ontario options, as can be seen in Table 5b. As David Kranes himself said of our implementation of his design approach, “It’s ok to be there. Trees are there. Flowers are there.”

The data can also be analysed using ANOVA and pairing CPGI category and Video as independent variables. Differences in outcome scores across the videos are therefore identified, depending on respondents’ gambling profiles. Based on this analysis, CPGI exhibits a reliable main effect on information rate, restorative feeling, gambling intention and pleasure (Tables 11 and 12, Appendix 4) but no interaction on any of the psychological dimensions with the design represented in the 6 casino videos. The main effect of CPGI is, however, of interest. Non-problem gamblers decreased their intention to gamble after seeing both the Kranes’ (3.5 to 1.7) and the Friedman videos (3.0 to 1.1). For these individuals, exposure to a gambling setting appears to have entrenched a commitment to not gamble or enhanced a lack of interest in gambling. Despite this effect, for non-gamblers, the music version of the Kranes’ video increased its restorative effect psychologically. For all the three problem gambling groups measured via the CPGI, however, the pattern of effects for Kranes-, Friedman- and Ontario-type designs was consistent with those found overall in the study. Music tended to increase perceived information rate for the Kranes’ design and decrease information rate for Friedman and Ontario (Table 13, Appendix 4). Similarly, Kranes’ was perceived the highest in pleasure and restorative ability, and gambling increased as information rate increased for the Kranes’ design. Of

particular note, however, gambling intentions held and decreased, for the Friedman and Ontario videos respectively when music was introduced.

The universality of the effect of influencing information rate is encouraging and noteworthy. Regardless of one's degree of assessed problem gambling (low risk, moderate risk or problem gambler), increasing information rate via music in a Kranes'-designed casino will increase information rate and intention to gamble. For both the Friedman and Ontario approaches, however, music decreases information rate and gambling intention regardless of how problematic the behaviour of a gambler may be.

Comments from respondents in the open-ended portion of the survey indicated that their attention was largely focused on the pleasurable and comfortable visual elements of the Kranes'-designed casino so that casino noise in its original state appeared to be ignored, or at least, added little in information rate to the equation. When music was added, however, this became more noticeable for the Kranes' viewers and information rate increased as did intention to gamble. The converse happened for the Friedman and Ontario videos. In both of these cases information rate decreased when the music audio replaced the noise of the casino. Gambling intentions also decreased, by 10% for the Friedman design and by 14% for the Ontario simulation.

### **Summary of Stage 2 Analysis**

Information rate is an important variable when looking at casino design. Information rate can be altered to influence gambling intentions. The current research provides an understanding of how elements of gambling venue design influence emotional responses among

gamblers. Hearing music instead of natural casino noise can increase information rate and consequently, gambling behaviour for a casino designed more elaborately (Kranes prototype: themed decor, presence of greenspace, water). This finding might have been expected given the amount of sensory and visual information already present in a Kranes-designed casino. When music is heard, it is unexpected in the setting and requires additional attention in order to be appreciated at a time when attentional resources are already being devoted to visual appreciation (Janiszewski, 1993). On the other hand, for a casino with less elaborate décor where the focus is on the gaming machines and tables (Friedman or Ontario simulation), music reduces information rate since it is melodic and replaces the attention to intermittent, less harmonious gambling machine noise. Since melodic music requires less attention than irregular machine noise, information rate is decreased. The music intervention reduces psychological stress experienced within the environment and therefore reduces gambling behaviour in casinos which are designed in a more functional way (Friedman or partial Friedman design). The fact that an intervention can alter information rate and gambling behaviour in different ways, depending on the overall design of the casino is interesting. Information rate can be altered in many ways (Mehrabian & Russell 1974), music being only one. Future studies should examine the effects of other variables proven by Mehrabian and Russell in a different context to influence information rate. A full profile of the effects of environmental variables on problem gambling activity could therefore be obtained for both Kranes' and Friedman macro casino designs.

### **Bingo and Racetrack Venues**

While Bingo and racetrack venues were tested, no alternative manipulations were tested. We judge that the pursuit of these venues from an environmental standpoint is less fruitful than

in the case of casinos. Bingo halls tend to be very similar and the motivations of bingo players may be less influenced by environment than is the case for casinos. The same is true for racetrack venues. Table 5 (Appendix 4) displays means for the key psychological measures for these venues. Information rate appears to be inherently low for a bingo hall, and it appears less pleasant and more psychologically stressful than is the case for the casinos tested. Racetracks have a moderate information rate. Restorative rate is in line with Ontario casinos, as is perceived pleasure. Individuals viewing bingo halls and racetracks report a significantly lower intention to gamble than for any casino tested.

### **Qualitative Data**

Responses to the open-ended question for each video (overall impression of gambling venue you just saw) were analysed using NVivo theme identification software. Appendix 5 contains a listing of all thoughts that were mentioned by the sample, with an indication of the number of respondents mentioning each theme. The top mentioned thoughts overall with the percent mentioning (including duplication) were:

Outdoor atmosphere/looked very natural	161
Makes you feel confident/important	160
Marble-like stone/sterile	159
Comfortable	158
Nice landscaping/pond	156
Too many flashing lights/too flashy	154
Impressive/attractive	152
Exciting	151
Popular spot	150
Little variety	147
Annoying/abnoxious	144
Distracting	143
People enjoying themselves/look happy	141
Mostly older females	137
Not relaxing	135
Excited to play anywhere	133

Top thoughts related to the Kranes' design were related to natural elements, openness, comfort, impressive, attractive. For the Friedman design, themes centred around little variety, annoying, exciting, popular, not relaxing.

### **Votestream Data**

Using first year University of Guelph students, the eight videos were rated to indicate how much respondents liked the gambling setting they were viewing throughout the 3 minutes of each video. This technology involves wireless, hand-held units on which students press either a "like" or "dislike" button as their feelings change during the viewing period. Combined with computer technology and software that automatically tallies their votes, a video tape is produced of each video with a continuous graph overlaid which provides the mean liking of each scene as it unfolds during that viewing session. They are available for viewing on request. Commonly high rated elements were vegetation, an uncluttered scene, water, visually interesting décor and blue skies. Low-rated elements tended to include a focus on one individual operating a slot machine,

machine mazes, and flashing lights. Low and high ratings of these elements were consistent throughout all videos. Kranes original and modified were the highest rated videos overall. This analysis aids in our understanding of elements which individuals rate highly in likeability in a gambling setting and will be useful in the development of future video simulations for testing.

### **Dissemination Success**

The pilot study (phase 1) has been presented at the 2003 conference of the American Real Estate Society (April 2003) in its Environmental Psychology division. The response to our findings was overwhelming, with multiple requests for copies of all working papers produced from this research for journal submission. This kind of request enhances the early citing of our work by other researchers interested in environmental psychology.

A paper was presented based on this research for the Responsible Gambling (Ontario) 2003 conference in Toronto (based on Stage 2 findings).

Finally, a paper based on the Votestream results and an architectural design familiarity variable was presented at the University of Nevada 12<sup>th</sup> International on Gambling and Risk-Taking in Vancouver in May 2003.

All three of the above conferences involve a peer-reviewed process for acceptance of papers.

Publication outlets and content by publication for the results obtained from this grant have been identified. Drafts of papers have been prepared and will be submitted to journals in early April. We envisioned two substantive articles (Phase 1 and Phase 2). We also plan to

submit a methodological article to a journal based on the application of the Votestream technology (hardware and software) to casino design assessment by respondents. Copies of all of papers produced under this grant will be forwarded to OPGRC.

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**Appendix 1**

**Gambling Environment Questionnaire, Stage One**

**Participant Consent Form**

The survey you will participate in today investigates architectural and interior design features of gambling venues in Canada. The general structure of the questionnaire and specific instructions will be described to you in more detail in the questionnaire. Essentially, however, you will be asked to describe and rate the characteristics of the gambling venue you have just visited.

The study should take no more than one (1) hour in total to complete. By participating, you will receive \$30 for your time. You may feel free to withdraw from this study at any time without penalty even after you have provided your consent. There are no physical or other risks presented by participating. All your responses will remain completely anonymous. There will be no retained link between signed consent forms and the completed questionnaires. Consequently, no one will be able to trace your responses back to your name. While some direct quotes may be used from answers in the questionnaires, they cannot be and will not be linked to any given respondent.

At the end of the questionnaire, you will be fully debriefed in writing regarding the intent and purpose of this research.

Please sign below to indicate that you agree to participate in this research and that you feel you have been given adequate information to understand the procedures you will complete.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Date

Project Director:

Karen Finlay, PhD.

Ph. (519) 824-4120 x. 3347

**General Aspects**

Facility Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

Weather conditions \_\_\_\_\_







4. a) Describe the most memorable images from inside (even if you have already mentioned them).

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b) What were the most predominant colours inside?

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c) What other colours were there?

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d) Was there any music inside? Any sounds that you can recall?

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e) Describe any conversations you had with people inside? (Staff or visitors)

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f) Describe the types of gambling machines that you saw inside.

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g) Please record any signs inside the place you just visited.

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*Instructions:*

Take about two minutes to really think about the gambling venue you just visited. Try to get into the mood of the situation; then rate the feelings you had inside with the adjective pairs below. Some of the pairs might seem unusual, but you'll probably feel more one way than the other. So, for each pair, put a check mark closer to the adjective which you believe to describe your feelings better. The more appropriate that adjective seems, the closer you put your check mark to it.

Autonomous	___ : ___ : ___ : ___ : ___ : ___ : ___	Guided
Pleased	___ : ___ : ___ : ___ : ___ : ___ : ___	Annoyed
Cared for	___ : ___ : ___ : ___ : ___ : ___ : ___	In control
Contented	___ : ___ : ___ : ___ : ___ : ___ : ___	Melancholic

Despairing	—	:	—	:	—	:	—	:	—	:	—	Hopeful
Frenzied	—	:	—	:	—	:	—	:	—	:	—	Sluggish
Controlled	—	:	—	:	—	:	—	:	—	:	—	Controlling
Calm	—	:	—	:	—	:	—	:	—	:	—	Excited
Relaxed	—	:	—	:	—	:	—	:	—	:	—	Bored
Dull	—	:	—	:	—	:	—	:	—	:	—	Jittery
Submissive	—	:	—	:	—	:	—	:	—	:	—	Dominant
Unaroused	—	:	—	:	—	:	—	:	—	:	—	Aroused
Stimulated	—	:	—	:	—	:	—	:	—	:	—	Relaxed
Influential	—	:	—	:	—	:	—	:	—	:	—	Influenced
Unsatisfied	—	:	—	:	—	:	—	:	—	:	—	Satisfied
Important	—	:	—	:	—	:	—	:	—	:	—	Awed
Wide awake	—	:	—	:	—	:	—	:	—	:	—	Sleepy
Unhappy	—	:	—	:	—	:	—	:	—	:	—	Happy
Disempowered	—	:	—	:	—	:	—	:	—	:	—	Empowered
Enriched	—	:	—	:	—	:	—	:	—	:	—	Impoverished
Disoriented	—	:	—	:	—	:	—	:	—	:	—	Centred
Free	—	:	—	:	—	:	—	:	—	:	—	Confined

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*Instructions:*

Please use the following adjective pairs to describe the gambling venue inside. Each of the following adjective pairs helps define the situation or the relation among the various parts of the situation. Put a check somewhere along the line to indicate what you think is an appropriate rating.

varied	__ : __ : __ : __ : __ : __ : __ : __ : __	redundant
simple	__ : __ : __ : __ : __ : __ : __ : __ : __	complex
novel	__ : __ : __ : __ : __ : __ : __ : __ : __	familiar
small scale	__ : __ : __ : __ : __ : __ : __ : __ : __	large scale
similar	__ : __ : __ : __ : __ : __ : __ : __ : __	contrasting
dense	__ : __ : __ : __ : __ : __ : __ : __ : __	sparse
intermittent	__ : __ : __ : __ : __ : __ : __ : __ : __	continuous
usual	__ : __ : __ : __ : __ : __ : __ : __ : __	surprising
heterogeneous	__ : __ : __ : __ : __ : __ : __ : __ : __	homogenous
uncrowded	__ : __ : __ : __ : __ : __ : __ : __ : __	crowded
asymmetrical	__ : __ : __ : __ : __ : __ : __ : __ : __	symmetrical
immediate	__ : __ : __ : __ : __ : __ : __ : __ : __	distant
common	__ : __ : __ : __ : __ : __ : __ : __ : __	rare
patterned	__ : __ : __ : __ : __ : __ : __ : __ : __	random

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*Instructions:*

For each scale below, please circle the number from 1 through 7 that best describes your rating of the gambling venue you just visited. One (1) stands for “totally disagree” and seven (7) for “totally agree” with 2, 3, 4, 5 and 6 for the degrees in between in order. There are no right or wrong answers, just answer freely based on your impression.

	Totally Disagree						Totally Agree						
There is a lot going on in this place	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
It was easy to find my way around the place	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
The parts of this place seem well integrated	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
This place promises more to be seen if you walk deeper in it	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
This place conveys a feeling of spaciousness	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
This place is a representative example of its category	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
There is a lot of vegetation and flowers in the place	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
The place has bright clear lighting	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
There is a lot to look at in this place	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
It was easy to find my way back to the entrance at any given point	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
The place hides either positive or negative encounters that might lie ahead	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
I can see deep and wide inside from my view	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>

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**Instructions:**

Please use the following adjective pairs to rate the gambling venue visited. Each of the following adjective pairs helps define the place or the relation among the various parts of the place. Put a check somewhere along the line to indicate what you think is an appropriate rating.

Adequate size	__ : __ : __ : __ : __ : __ : __	Inadequate size
Appealing	__ : __ : __ : __ : __ : __ : __	Unappealing
Bright	__ : __ : __ : __ : __ : __ : __	Dull
Comfortable	__ : __ : __ : __ : __ : __ : __	Uncomfortable
Complex	__ : __ : __ : __ : __ : __ : __	Simple
Expensive	__ : __ : __ : __ : __ : __ : __	Cheap
Free space	__ : __ : __ : __ : __ : __ : __	Restricted space
Good acoustics	__ : __ : __ : __ : __ : __ : __	Poor acoustics
Good lighting	__ : __ : __ : __ : __ : __ : __	Poor lighting
Good temperature	__ : __ : __ : __ : __ : __ : __	Bad temperature
Good ventilation	__ : __ : __ : __ : __ : __ : __	Bad ventilation
Impressive	__ : __ : __ : __ : __ : __ : __	Unimpressive
Inviting	__ : __ : __ : __ : __ : __ : __	Repelling
Orderly	__ : __ : __ : __ : __ : __ : __	Chaotic
Private	__ : __ : __ : __ : __ : __ : __	Public
Uncluttered	__ : __ : __ : __ : __ : __ : __	Cluttered
Cozy	__ : __ : __ : __ : __ : __ : __	Roomy
Colorless	__ : __ : __ : __ : __ : __ : __	Colourful
Flexible	__ : __ : __ : __ : __ : __ : __	Rigid
Safe	__ : __ : __ : __ : __ : __ : __	Dangerous
Artificial light	__ : __ : __ : __ : __ : __ : __	Natural light
Formal	__ : __ : __ : __ : __ : __ : __	Casual
Friendly	__ : __ : __ : __ : __ : __ : __	Hostile
Generous	__ : __ : __ : __ : __ : __ : __	Frugal
Subdued	__ : __ : __ : __ : __ : __ : __	Vibrant
Light diffuse	__ : __ : __ : __ : __ : __ : __	Light direct
Facilitating	__ : __ : __ : __ : __ : __ : __	Distracting
Satisfying	__ : __ : __ : __ : __ : __ : __	Frustrating
Sociable	__ : __ : __ : __ : __ : __ : __	Unsociable
Relaxed	__ : __ : __ : __ : __ : __ : __	Tense
Interesting	__ : __ : __ : __ : __ : __ : __	Monotonous
Faces clear	__ : __ : __ : __ : __ : __ : __	Faces obscure
Protected	__ : __ : __ : __ : __ : __ : __	Exposed
Bright light	__ : __ : __ : __ : __ : __ : __	Dimmed light
Clear	__ : __ : __ : __ : __ : __ : __	Ambiguous

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*Instructions:*

For each statement below, please state your agreement by circling a number from 1 through 7 that best describes how much you agree with it. One (1) stands for “totally disagree” and seven (7) for “totally agree” with 2, 3, 4, 5 and 6 for the degrees in between in order. There are no right or wrong answers, just answer freely based on your impression.

	Totally Disagree							Totally Agree					
This place is a refuge from unwanted distractions	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
There is a clear order in the physical arrangement of this place	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
This place is fascinating	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
Spending time here gives me a break from my day to day routine	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
Following what is going on here really holds my interest	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
There are few hard boundaries here to limit my possibilities for moving about	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
The things and activities I see here seem to fit together quite naturally	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
There is little here to prevent me from doing what I would choose to do	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
I prefer this place over all other places I have ever been	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
It seem like this place goes on forever	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
The activities that it is possible for me to do here are activities I enjoy	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>
I like this place	<u>1</u>	:	<u>2</u>	:	<u>3</u>	:	<u>4</u>	:	<u>5</u>	:	<u>6</u>	:	<u>7</u>

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*Instructions:*

For each statement below, please state your agreement by circling a number from 1 through 9 that best describes how much you agree with it. One (1) stands for “totally disagree” and nine (9) for “totally agree” with 2, 3, 4, 5, 6, 7 and 8 for the degrees in between in order. There are no right or wrong answers, just answer freely based on your impression.

	Totally Disagree		Totally Agree	Not applicable
I usually gamble (play) more money than I intended	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I usually get drawn into other types of games I didn't intend to play	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I have an uncontrollable urge to bet (play) a lot of money when I come here	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I have trouble quitting without placing one more bet. (Without playing one more card)	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I probably bet (play) more than I wanted to at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I feel like I owe it to myself to bet (play) money when I come here	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I feel less bored than before I came out to bet (play) today	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I feel a bit depressed when I come to gamble (play)	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I would probably regret betting money when I think about it later	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I feel like an anonymous face in the crowd when I come here	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
All people gambling tend to look alike to me when I come here	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I feel a bit overwhelmed when I come to gamble (play) here	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I feel angry when I come to gamble (play) here	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
Nobody pays attention to me when I come to gamble (play) here	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I feel that other gamblers would recognize me if they saw me again	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>
I feel alienated from other gamblers when I come to this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u> : <u>8</u> : <u>9</u>			<u>NA</u>

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*Instructions:*

Some of the next questions may not apply to you, but please try to be as accurate as possible.

THINKING ABOUT THE LAST 12 MONTHS...

1. Have you bet more than you could really afford to lose?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

2. Still thinking about the last 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

3. When you gambled, did you go back another day to try to win back the money you lost?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

4. Have you borrowed money or sold anything to get money to gamble?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

5. Have you felt that you might have a problem with gambling?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

6. Has gambling caused you any health problems, including stress or anxiety?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

7. Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

8. Has your gambling caused any financial problems for you or your household?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

9. Have you felt guilty about the way you gamble or what happens when you gamble?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

10. Have you lied to family members or others to hide your gambling?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

11. Have you bet or spent more money than you wanted to on gambling?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know

12. Have you wanted to stop betting money or gambling, but didn't think you could?

- Never
- Sometimes
- Most of the time
- Almost always
- Don't know



## Appendix 2 – Input from David Kranes on Gambling Simulations

### SIMULATIONS OF CASINO SPACE: KRANES & FRIEDMAN

#### Kranes Simulation

The simulation of the Kranes design principals captures much of what might be called his “model” for an “Explorable Public Gathering Space.” The film records people being drawn forward in their wandering by various sensual stimuli: light, color, flowers, water, trees. The paths along which they stroll are wide and uncongested—allowing individual choice of pace. The lines of the public spaces in which these people stroll tend to be sensuous and curved. Circle-domes are filmed.

A good word for one of this simulation’s unifying concepts is **natural**. The public can move at a natural pace, employ a natural rhythm, through spaces in which are often situated **natural** elements of the **natural** world: sunlight, flowers, greenspace. If the casino space is not—as a whole—a **natural** environment, the public is constantly reminded that it is integrated into the natural scheme of things. They are not in a “secret,” “dark,” “transgressive” space. It’s okay to be there. Trees are there. Flowers are there.

The camera work in this simulation echoes what’s been said above. The movement and rhythm of the camera is that of a “glide,” a “stroll.” It’s **leisurely**. And **leisurely** might serve as another organizing conceptual word. Gaming is a “leisure activity.” The best spaces should echo that and prompt leisurely movement, leisurely activity, leisurely spirit. For the most part, the camera work in this simulation does that. The result is: a mood which is calming, easy.

Said another way: the Kranes simulation optimizes **freedom**. There is “space” to move in—not only on the casino floor, but in the imagination. The stroller walking in this film footage would feel: “I have choices here. There are *possibilities*—to engage in games, to simply walk and explore, to eat, to have conversations. Activity doesn’t appear forced. Personal agency appears open.

The Kranes-simulation footage has some interesting shots of children. They seem “at home” in their strolling/exploring space. They seem in whimsical and playful moods—not tugging at the arms of parents. Though the casino-space is a “strange” and “different” space for them, their appearance is more intrigued than resisting. The casino-space seems a possible “play-ground.”

The one element which is important to the Kranes model and which this video simulation **doesn’t** establish is a space with a **center**. All those strolling through the space look comfortable—as if they know and trust where the path will lead them. They seem to be strolling in a **space of presumed order** and design—but there’s no indication of any central “axis” from which they wander and explore.

### **Friedman Simulation**

The Friedman simulation captures many of Bill Friedman’s thirteen principals for a “winning” casino floor and space design. The Friedman “model” hopes to (1) never let the person in the space forget that the dedicated activity-to-be-pursued in it is **gambling**, (2) tries hard not to “distract” those in the space with frills and décor, (3) hopes to disorient those in the space by creating dead-ended paths in the way a maze would create dead-ended paths, (4) presumes that the creation of disorienting “mazes” will create an anxious energy within those occupying the space—such that, out of that energy, those present will begin to occupy themselves with “busy” activity:

namely **gambling**, (5) presumes that this anxious gambling will feed on itself—that the player will gamble more and more and more until (hopefully) the gambling resources are gone and the player is “spent” and, ultimately, leaves.

The video simulation suggests the Friedman model strongly through a **bombardment** of visual stimuli—light and color and repeated shapes especially—rather than an **orchestration** of visual stimuli. It uses machine-model straight lines and angles rather than sensual and organic curves. There are no discernable **paths**; guests need to find their own ways. But even the “gap” (if not *path*) spaces are narrow and less comfortable to negotiate. The tight gaps dictate a faster pace of strolling: *if I don't hurry and get through this gap now—I may meet someone coming the other way and have to squeeze through*. It's more as if the strollers are on back streets and alleys rather than in the “rotunda” of a grand public building.

A good contrasting word for this simulation—and one which captures Friedman notions—is **unnatural**. A stroller's natural biorhythms are jangled and bounced around. The camera work reflects this with significant hand-held effects as well as abrupt zooms in and zooms out. There is no evidence of the **natural world** evident: no trees, flowers, natural light. The constant statement seems to be: “You're in a different and **unnatural** place—a place constructed for different and **unnatural** activities.”

Again: the camera work is jagged, jiggled, unstable. It creates the impression of being off-balance. It moves forward with jumps and spurts of energy. It's anxious and unrelaxed—just like the mood of the place. There's no leisure. Everything's hurried and impulsive. The simulation creates a spatial world governed by nervous impulse. It's the space of the **impulse gambler**—not the space of the “leisure” or

“recreational” gambler. This simulated space is one more suited to “letting off steam” than “playing.”

Said differently: this is a **caged** space—one in which an animal, considering its next move, paces. One’s attempt to move with purpose and in a decided direction is repeatedly blocked. In such a space, it’s hard to think clearly and purposefully. It’s hard to reflect, daydream, imagine. The goal becomes trying to outwit roadblocks rather than reach a destination. It’s a space of *compromise solutions* rather than *possibilities*. The options are taken away. One either *plays*... or one *plays*....or one *plays*. Rather than bouncing off the walls: one might as well play.

The Friedman simulation footage has a number of shots of Seniors. They look a bit lost and a bit fragile. Their eyes look more tense than delighted. They don’t appear entirely “at home” in the space. Even though they’ve chosen to be there, they don’t appear “settled” in what they’re doing. They appear to be trying to “find” what it is they should be doing, why it is they came.

This simulation is also an “uncentered” space—which seems more appropriate for the Friedman model. It’s easier to get lost in public spaces without centers. It’s easier to build anxious energy when the whole of a large floor space is undifferentiated—one area from another. The simulation creates **a space of presumed disorder**.

One curious element about the two segments which I didn’t understand was the use of the **same playing footage** in both simulations. It confused me. Was the idea to build to those shots of table play and of the dealer in hopes that people seeing the Kranes simulation alone—and asked whether the players were “having a good time”—would say “yes” and that people seeing the same footage in the Friedman

simulation and asked the same question would say, “no?” If so: I’d be fascinated with the results.

## Participant Consent Form

The survey you will participate in today investigates architectural and interior design features of gambling venues in Canada. The general structure of the questionnaire and specific instructions will be described to you in more detail in the questionnaire. Essentially, however, you will be asked to view videos of gambling venues and rate the characteristics of them in a questionnaire. You will see 4 short videos in total, and complete a questionnaire after each one.

The study should take no more than one (1) hour in total to complete. By participating, you will receive \$30 for your time. You may feel free to withdraw from this study at any time without penalty even after you have provided your consent. There are no physical or other risks presented by participating. All your responses will remain completely anonymous. There will be no retained link between signed consent forms and the completed questionnaires. Consequently, no one will be able to trace your responses back to your name. While some direct quotes may be used from answers in the questionnaires, they cannot be and will not be linked to any given respondent.

At the end of the questionnaire, you will be fully debriefed in writing regarding the intent and purpose of this research.

Please sign below to indicate that you agree to participate in this research and that you feel you have been given adequate information to understand the procedures you will complete.

---

Name

Date

Project Director:

Karen Finlay, PhD.

Ph. (519) 824-4120 x. 3347

VIDEO # \_\_\_\_\_

In the video you just saw, a gambling venue was portrayed.

This questionnaire will address specific aspects of what you just saw and how you felt while you viewed the video. Please remember that this section refers only to the specific venue you have most recently seen during this research session.

Please make sure you read the instructions carefully in each section of this booklet.

After you are finished with this booklet, please close it and notify the researcher who will show you the next video.

Please describe your overall impression of the gambling venue you just saw. Include a description of how you felt or think you would feel if you were visiting this gambling venue. All possible impressions are important to us, so please try to indicate as much as possible.

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*Instructions:*

Take about two minutes to really think about the gambling venue you just saw. Try to get into the mood of the situation; then rate the feelings you might have inside with the adjective pairs below. Some of the pairs might seem unusual, but you'll probably feel more one way than the other. So, for each pair, put a check mark closer to the adjective which you believe to describe your feelings better. The more appropriate that adjective seems, the closer you put your check mark to it.

Autonomous	__ : __ : __ : __ : __ : __ : __	Guided
Pleased	__ : __ : __ : __ : __ : __ : __	Annoyed
Cared for	__ : __ : __ : __ : __ : __ : __	In control
Contented	__ : __ : __ : __ : __ : __ : __	Melancholic
Despairing	__ : __ : __ : __ : __ : __ : __	Hopeful
Frenzied	__ : __ : __ : __ : __ : __ : __	Sluggish
Controlled	__ : __ : __ : __ : __ : __ : __	Controlling
Calm	__ : __ : __ : __ : __ : __ : __	Excited
Relaxed	__ : __ : __ : __ : __ : __ : __	Bored
Dull	__ : __ : __ : __ : __ : __ : __	Jittery
Submissive	__ : __ : __ : __ : __ : __ : __	Dominant

Unaroused	__ : __ : __ : __ : __ : __ : __	Aroused
Stimulated	__ : __ : __ : __ : __ : __ : __	Relaxed
Influential	__ : __ : __ : __ : __ : __ : __	Influenced
Unsatisfied	__ : __ : __ : __ : __ : __ : __	Satisfied
Important	__ : __ : __ : __ : __ : __ : __	Awed
Wide awake	__ : __ : __ : __ : __ : __ : __	Sleepy
Unhappy	__ : __ : __ : __ : __ : __ : __	Happy

*Instructions:*

Please use the following adjective pairs to describe how you imagined the gambling venue inside. Each of the following adjective pairs helps define the situation or the relation among the various parts of the situation. Put a checkmark along the line to indicate what you think is an appropriate rating.

Varied	__ : __ : __ : __ : __ : __ : __	Redundant
simple	__ : __ : __ : __ : __ : __ : __	complex
novel	__ : __ : __ : __ : __ : __ : __	familiar
small scale	__ : __ : __ : __ : __ : __ : __	large scale
similar	__ : __ : __ : __ : __ : __ : __	contrasting
dense	__ : __ : __ : __ : __ : __ : __	sparse
intermittent	__ : __ : __ : __ : __ : __ : __	continuous
usual	__ : __ : __ : __ : __ : __ : __	surprising
heterogeneous	__ : __ : __ : __ : __ : __ : __	homogenous
uncrowded	__ : __ : __ : __ : __ : __ : __	crowded
asymmetrical	__ : __ : __ : __ : __ : __ : __	symmetrical
common	__ : __ : __ : __ : __ : __ : __	rare
patterned	__ : __ : __ : __ : __ : __ : __	random

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*Instructions:*

For each statement below, please state your agreement by circling a number from 1 through 7 that best describes how much you agree with it. One (1) stands for “totally disagree” and seven (7) for “totally agree” with 2, 3, 4, 5 and 6 for the degrees in between in order. There are no right or wrong answers, just answer freely based on your impression.

	Totally Disagree	Totally Agree
This place is a refuge from unwanted distractions	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
There is a clear order in the physical arrangement of this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
This place is fascinating	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
Spending time here gives me a break from my day to day routine	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
Following what is going on here really holds my interest	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
The things and activities I see here seem to fit together quite naturally	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I prefer this place over all other places I might ever have been	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I like this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	

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**Instructions:**

For each statement below, please state your agreement by circling a number from 1 through 9 that best describes how much you agree with it. One (1) stands for “totally disagree” and nine (9) for “totally agree” with 2, 3, 4, 5, 6, 7 and 8 for the degrees in between in order. There are no right or wrong answers, just answer freely based on your impression.

	Totally Disagree	Totally Agree
I would gamble (play) more money than I intended at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I would get drawn into other types of games I didn't intend to play at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I would have an uncontrollable urge to bet (play) a lot of money at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I would have trouble quitting without placing one more bet at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I would probably bet (play) more than I wanted to at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I would probably regret betting money at this place when I think about it later	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I would feel like an anonymous face in the crowd at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
All people gambling would tend to look alike to me at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
I would feel a bit overwhelmed gambling (playing) at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	
Nobody would pay attention to me if I come to gamble (play) at this place	<u>1</u> : <u>2</u> : <u>3</u> : <u>4</u> : <u>5</u> : <u>6</u> : <u>7</u>	

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Please indicate how much you liked the gambling venue overall.

Very little       :    :    :    :    :    :    :    :       A lot

Please indicate how interesting you find this gambling venue to be overall.

Not at all       :    :    :    :    :    :    :    :       Very Interesting

Please indicate how familiar you are with the sort of gambling venue you just saw.

Not at all       :    :    :    :    :    :    :    :       Extremely Familiar

Please indicate how recognizable this sort of gambling venue was to you.

Not at all recognizable \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Extremely Recognizable

Please indicate how much experience you have in a setting of this sort.

Little/No experience \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ A lot of experience

Please rate how experienced you feel you are as a gambler in a gambling venue of this sort

Not at all experienced \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Extremely experienced

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You have finished this section of the questionnaire.

Please close this booklet and notify the researcher.

Debrief:

Dear participant:

The survey you just completed intends to explore architectural and design features of gambling venues, such as casinos, bingo halls and horse racetracks. Gambling can be entertaining and fun, but it should be done responsibly; this is why the interest of this research project is to identify any possible physical design aspects that may influence how visitors and regular patrons perceive the gambling venues and ultimately influence how they behave while playing.

All the information you provided will remain private and confidential and no record of your name or persona will be attached to it. Also, you will not be contacted in the future regarding this survey by any person.

If you would like more information or have any concerns, please feel free to contact us. The contact information is located in the bottom part of this letter.

Thanks for participating!

Karen Finlay, PhD

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Department of Consumer Studies

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Guelph, Ontario

Canada

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Appendix 4 – Data Tables – Stage 2 Study

Table 2 Demographic Breakouts for Stage 2 Sample

Age	Percent
18 - 24	25.7
25 - 35	23.8
36 - 45	17.8
46 - 55	18.8
56 - 65	11.9
66 or above	2.0
Total	100.0

Gender	Percent
Male	56.4
Female	43.6
Total	100.0

Marital Status	Percent
0	1.0
Never married/single	38.6
Married	31.7
Divorced	17.8
4	4.0
5	4.0
6	1.0
9	2.0
Total	100.0

Education	Percent
High school	48.5
College degree	30.7
Undergraduate degree	14.9
Graduate degree	5.0
Other	1.0
Total	100.0

Working Full time	Percent
0	23.8
1	36.6
2	29.7
3	5.9
4	3.0
5	1.0
Total	100.0

Working Part Time	Percent
0	68.3
1	23.8
2	6.9
4	1.0
Total	100.0

Annual household income	
	Percent
0	1.0
0 - \$15,000	10.9
\$15,001 - \$25,000	11.9
\$25,001 - \$35,000	12.9
\$35,001 - \$45,000	14.9
\$45,001 - 55,000	9.9
\$55,001 - \$65,000	8.9
\$65,001 - \$75,000	7.9
\$75,001 - \$85,000	3.0
\$85,001 - \$95,000	4.0
\$95,001 and above	14.9
Total	100.0

Children under the age of 18	
	Percent
0	35.0
1	10.3
2	3.2
3	1.2
4	1.2
Total	50.9
Missing System	49.1
Total	100.0

Table 6: Reliability Estimates of Key Various Scales  
n=404

Coefficient Alpha Results						
	Std. Coefficient Alpha All items		Items Removed	Items Included	Std. Coefficient Alpha Remaining Items	
	Std				Std.	
Info. Rate *	0.7948	0.7964	6,7,9,10,11	1,2,3,4,5,8,12	0.8237	0.8230
Restorative **	0.8675	0.8695	None	1 – 8	0.8675	0.8695
Gambling Intension ***	0.7715	0.7798	6,7,8,9,10	1,2,3,4,5	0.9119	0.9126
Deindividuation ****	0.7715	0.7798	None	1 – 10		
Pleasure *****	0.9213	0.9217	None	1 – 6	0.9213	0.9217
Arousal *****	0.8962	0.8937	None	1 – 6	0.8962	0.8937
Dominance *****	0.6703	0.6700	None	1 – 6	0.6703	0.6700

- \* page 4 of video questionnaire booklet contained in Appendix 2
- \*\* page 6 of video questionnaire booklet contained in Appendix 2
- \*\*\* items 1-5 of page 7 of video questionnaire booklet contained in Appendix 2
- \*\*\*\* page 7 of video questionnaire booklet contained in Appendix 2
- \*\*\*\*\* items 2,4,5,9,15,18, of page 3 of video questionnaire booklet in Appendix 2
- \*\*\*\*\* items 6,8,10,12,13,17 of page 3 of video questionnaire booklet in Appendix 2
- \*\*\*\*\* items 1,3,7,11,14,16 of page 3 of video questionnaire booklet in Appendix 2

Table 7: Design and Information Rate Effects  
n=404

	Main Effect of video		Main Effect of Information Rate		Interaction of Video Information Rate	
Info. Rate	F(2,2)*=12.006	p<0.077	F(1,2)*=0.248	p<0.67	F(2,296)*=1.877	p<0.155
Restorative	F(2,2)= 18.577	p<0.051	F(1,2)= 6.141	p<0.131	F(2,297)=0.257	p<0.774
Gambling	F(2,2)*= 0.082	p<0.925	F(1,2)*=0.209	p<0.693	F(2,297)*=2.676	p<0.071
Intension						
Deindividuation	F(2,2)=0.037	p<0.964	F(1,2)= 0.670	p<0.499	F(2,297)=2.326	p<0.100
Pleasure	F(2,2)*=0.049	p<0.953	F(1,2)*= 0.521	p<0.545	F(2,295)*=6.667	p<0.000
Arousal	F(2,2)*=0.246	p<0.803	F(1,2)*= 0.374	p<0.603	F(2,295)*=6.468	p<0.002
Dominance	F(2,2)*=0.988	p<0.503	F(1,2)*= 6.309	p<0.129	F(2,297)*=0.338	p<0.713

\*Variables Transformed Using Log(10)

Table 8: Means for Key Dependent Measures by Design Condition  
..n=404

	Kranes Orig.	Kranes Mod.	Fried. Orig.	Fried. Mod.	Ontario Orig.	Ontario Mod.	F + O Ori.	F + O Mod.	Bingo
Info. Rate	0.55	0.89	-0.49	-0.73	-0.15	-0.24	-0.32	-0.49	-2.20
Restorative	4.82	5.13	4.39	4.56	4.50	4.56	4.44	4.56	3.62
Gambling Intension	3.61 <sup>a</sup>	3.98 <sup>a</sup>	3.88 <sup>e</sup>	3.51 <sup>e</sup>	4.02	3.45	3.95 <sup>d</sup>	3.48 <sup>d</sup>	2.40
Deindividuation	3.88	4.13	4.19	3.81	4.24	3.88	4.22	3.85	3.19
Pleasure	0.72 <sup>b</sup>	-0.24 <sup>b</sup>	0.27 <sup>f</sup>	0.35 <sup>f</sup>	0.08	0.47	0.18	0.41	0.20
Arousal	0.47 <sup>c</sup>	-0.34 <sup>c</sup>	0.27 <sup>g</sup>	0.49 <sup>g</sup>	0.12 <sup>i</sup>	0.43 <sup>i</sup>	0.19	0.46	-0.09
Dominance	-0.09	0.24	0.13 <sup>h</sup>	0.05 <sup>h</sup>	-0.19	-0.01	-0.03 <sup>j</sup>	0.02 <sup>j</sup>	-0.11

- a F=3.70 p<0.06  
b F=7.76 p<0.01  
c\* F=15.75 p<0.00  
d\* F=2.7 p<0.10  
e\* F=1.60 p<0.21  
f F=2.92 p<0.09  
g F=2.28. p < 0.135  
h\* F=2.33 p<0.13  
i F=3.90 p<0.05

**Keys:**

Orig.= Original

Mod.= Modified

Fried.=Friedman

F+O = Friedman + Ontario Combined

Info. Rate = Information Rate

Restorative = Restorative Scale

\* Variables transformed using Log (10)

Table 10: Means for Key Dependent Measures Kranes vs. Friedman + Ontario  
n=404

	Kranes Orig.	F + O Orig.	Kranes Mod.	F + O Mod.
Info. Rate	0.55 <sup>a</sup>	-0.32 <sup>a</sup>	0.89 <sup>g</sup>	-0.49 <sup>g</sup>
Restorative	4.82 <sup>b</sup>	4.44 <sup>b</sup>	5.13 <sup>h</sup>	4.56 <sup>h</sup>
Gambling Intention	3.61 <sup>c</sup>	3.95 <sup>c</sup>	3.98 <sup>i</sup>	3.48 <sup>i</sup>
Deindividuation	3.88 <sup>d</sup>	4.22 <sup>d</sup>	4.13 <sup>j</sup>	3.85 <sup>j</sup>
Pleasure	0.72 <sup>e</sup>	0.18 <sup>e</sup>	-0.24 <sup>k</sup>	0.41 <sup>k</sup>
Arousal	0.47 <sup>f</sup>	0.19 <sup>f</sup>	-0.34 <sup>l</sup>	0.46 <sup>l</sup>
Dominance	-0.09	-0.03	0.24	0.02

- a\* t=3.41 p<0.00
- b t=1.65 p<0.10
- c t=-1.10 p<0.27
- d t=-1.50 p<0.14
- e t=2.19 p<0.03
- f t=1.51 p<0.13
- g t=6.44 p<0.00
- h t=3.33 p<0.00
- i t=2.30 p<0.02
- j t=1.45 p<0.15
- k t=-2.69 p<0.01
- l t=-3.20 p<0.00

**Keys:**

Orig.= Original

Mod.= Modified

F+O = Friedman + Ontario Combined

Info. Rate = Information Rate

Restorative = Restorative Scale

Table 11: Video and CPGI Effects

n=404

\* All the variables are transformed using Log (10)

	Main Effect of video		Main Effect of CPGI		Interaction of Video and CPGI	
	F(2,2)	p	F (2,2)	p	F(2, 297)	p
Info. Rate	8.76	.00	3.23	.05	0.62	.86
Restorative	6.85	.00	1.91	.01	1.15	.64
Gambling	0.47	.80	17.1	.00	1.30	.20
Intention						
Pleasure	2.86	.03	6.72	.00	0.80	.68
Arousal	1.47	.23	2.48	.10	0.96	.51
Dominance	0.85	.51	1.51	.25	0.28	.99

Table 12: Key Variables – Means by CPGI Category  
n=404

	Total	CPGI 1 No Problem N=7	CPGI 2 Low Risk N=13	CPGI 3 Moderate Risk N=36	CPGI4 Problem Gambler N=45
Info. Rate	-0.03	-0.60	-0.23	-0.07	-0.03
Restorative Gambling Intention	4.66 3.73	4.85 2.63	4.37 2.35	4.58 3.57	4.78 4.44
Deindividuation	4.02	3.56	3.26	3.75	4.53
Pleasure	0.27	-0.06	0.78	0.45	0.04
Arousal	0.24	0.22	0.37	0.41	0.06
Dominance	0.02	0.33	0.06	-0.08	0.05

Table 13: Means for Key Dependent Measures by Design Condition  
n=404

	Kranes Orig.	Kranes Mod.	Fried. Orig.	Fried. Mod.	Ontario Orig.	Ontario Mod.
<b>Non-Problem Gambler</b>						
Info. Rate	6.2	6.5	4.9	4.6	4.4	6.2
Restorative	4.5	6.0	4.3	4.3	4.3	5.4
Gambling Intention	3.5	1.7	3.0	1.1	1.5	3.6
Pleasure	4.7	2.0	4.6	3.8	3.3	3.9
Arousal	4.4	2.9	4.6	4.3	3.1	4.4
Dominance	3.7	4.2	3.8	4.0	4.3	4.0
<b>Low Risk</b>						
Info. Rate	4.8	6.0	4.6	3.3	4.4	3.9
Restorative	4.8	5.4	3.1	4.8	4.7	3.8
Gambling Intention	1.3	3.4	2.2	2.7	3.2	1.8
Pleasure	5.5	5.2	4.0	5.0	4.6	4.5
Arousal	3.8	4.9	4.2	4.5	4.6	4.3
Dominance	4.1	4.1	3.9	3.8	4.0	4.3
<b>Moderate Risk</b>						
Info. Rate	5.9	5.8	4.4	4.1	5.0	4.6
Restorative	4.8	5.0	4.5	4.3	4.4	4.8
Gambling Intention	3.6	3.8	4.0	2.8	3.7	3.6
Pleasure	4.8	3.5	4.6	4.4	4.3	4.9
Arousal	4.4	3.7	4.5	4.5	4.4	4.7
Dominance	3.8	4.1	4.0	4.0	3.8	3.9
<b>Problem Gambler</b>						
Info. Rate	5.2	5.8	4.5	4.1	4.9	5.0
Restorative	4.9	5.0	4.8	4.8	4.6	4.4
Gambling Intention	4.3	4.7	4.5	4.5	4.0	3.5
Pleasure	4.3	3.2	3.9	3.8	3.9	4.2
Arousal	4.7	2.9	3.9	4.1	3.9	4.1
Dominance	3.9	4.0	3.9	3.8	3.8	3.9

**Keys:**

Orig.= Original      Info. Rate = Information  
Rate  
Mod.= Modified      Restorative = Restorative  
Scale  
Fried.=Friedman

## Appendix 5 – Analysis of Open-Ended Responses to Video Simulations ( # of respondent mentions including duplication)

### Categorization

#### Approach

- inviting/appealing/welcoming (27)
- wanted to spend a lot of time there/love to visit/wish I was there (89)
- liked this place/this is my kind of gambling (98)
- would gamble/consider gambling here (99)
- dash inside (39)
- excited to play anywhere (133)

#### Avoidance

- not inviting/unwelcoming/uncomfortable (28)
- not interested in this form of gambling (101)
- would not have fun there/could only stand it for a short period of time/doubt I would attend a place like this (129)

#### Target Market

##### High Class

- for rich people/for a higher class of individuals (134)
- elegant/classier/classy/fancy/luxurious/ first class place/higher class/ fancy décor/posh (21)

##### Low Class

- lower class people/low scaled people (20)
- looked like a homeless diner (23)
- aimed at low class population/not as fancy/ lesser upper class tone to it (68)

##### Middle of the Road

- invites all classes of people/suitable for all classes people from various social classes/nice mix of people (109)

##### Targeted at the Elderly

- lots of elderly people/seniors (17)
- mostly older females (137)
- suited to an elderly generation /environment geared towards a more elderly crowd (148)

##### Male dominated (125)

##### Family Atmosphere

- saw children/can bring children (106)
- family/attempt to create a family atmosphere/family oriented (108)
- resort setting/looked like it was connected to a hotel/like people were on vacation/tourist type mood (115)

#### Environment

##### Open Environment

- little security/less visible security people/can choose to do what you want/leniency with regard to those who can see the casino (116)
- inviting/appealing/welcoming (27)
- track open (87)

##### Closed Environment

- not inviting/unwelcoming/uncomfortable (28)
- security/ strict security/ lots of security/strict rules (88)
- no access to outside world (122)

##### Crowded

- crowded/busy/overcrowded (11)

- Uncrowded
  - too few people/too many empty machines/very little gambling (12)
  - empty/not very busy/not crowded/not too many people/a lot of empty seats (59)
  - usually have to wait to play (100)
  - would be exciting with more people/competition makes gambling much more exciting (151)
- Dense
  - no room to move around/claustrophobic (47)
  - as if you were trapped in a box (54)
- Sparse
  - spacious/open (16)
  - airy place/spread out (43)
- Scale
  - seemed to go on forever/long walkways (50)
  - big place/very large (55)
  - small place
- View
  - machines blocked the view (46)
  - bad visibility/areas could not be seen from entrance (53)
  - could see wide and far (86)
- Cleanliness
  - clean/well kept (6)
  - well ventilated/ there was no smoking (14)
  - not clean/dirty (7)
  - smelly/not well ventilated/smoky (10)
- Lighting
  - Positive
    - well lighted/bright (15)
    - natural light/skylight is wonderful /daylight (41)
    - flashy lights/ flashing lights/lots of neon lights/enormous amount of flashing lights/numerous bright flashing lights (61)
    - not so trippee/not a lot of flashy lights (94)
    - flashing and stroby lights are appealing/enticing/exciting/energizing (112)
    - flashing lights create sense of fantasy (113)
    - racetrack bright (79)
  - Negative
    - dim/no good lighting/too dark (9)
    - no natural light/no windows (96)
    - If its too dark and low ceilinged I feel claustrophobic (105)
    - too many flashing lights/too many lights/too flashy (154)
- Sounds
  - too noisy/noisy/loud/too many sounds (5)
  - audible music/background music/pleasant music (62)
  - quiet/few sounds of people winning (70)
  - announcer monotone (95)
  - noises of the machines/coin dropping sounds are an arousing lure to try the slots/like sounds/sound of bells reminds you of the winners (114)
  - music is missing (146)
- Layout
  - slots in mazes (31)
  - many slot machines/more machines than fancy background displays /machines close together (107)

- multilevel/multi sectional (33)
- complex arrangement/elaborate (44)
- not symmetric (63)
- private areas (69)
- more card games visible/impressed by card playing facilities (118)
- few gaming tables (52)
- nice landscaping/pond (156)

#### Variety

- lots of things to look at/offers lots of possibilities/it was more than gambling/many activities (57)
- restaurants/bars/entertainment/small shops/shopping mall (67)
- variety of slot machines /games/tables/lots of gaming options (110)
- variety is important (132)
- little variety (147)

#### Restorativeness

##### Organization

- disjointed place/not well organized/randomly put games/lacks structure (35)
- confusing/intimidating/would feel lost (120)
- efficient (42)
- well planned/ well themed/a little more organized/more controlled (71)
- nice layout/large toll boards/many betting windows (157)

##### Natural Elements

- Waterfalls (34)
- greenery/trees/plants(36)
- no clouds/no blue sky (77)
- blue sky/clouds (82)
- outdoor atmosphere/looked very natural (161)

##### Fascination

- not spectacular/not very interesting/less impressive/not as great (37)
- spectacular/impressive/fantastic/ interesting/flashy (38)
- average place/common/nothing special/typical/same as other casinos; bingo halls (22)
- novel/unusual/stands out/out of the ordinary (74)
- simple/plain/pretty basic (45)

##### Distraction

- tv's distracting (8)
- distracting (143)
- annoying/obnoxious (144)

#### Arousal

##### Low Arousal

- low key/calm/no excitement (1)
- Slow paced/slow movement (29)
- calm/peaceful décor (78)
- dull /boring/waste of time (92)
- would feel relaxed (117)

##### High Arousal

- difficult to keep up/keep track (102)
- lively/upbeat/exciting/fun/stimulating (127)
- Vegas is more exciting/would be the place to gamble (128)
- not relaxing (135)
- overwhelming/chaotic/hectic (136)

## Mood

### Negative

- individuals looked hopeless/desperate/wandering (3)
- not friendly people/serious people/dull faces/self absorbed (19)
- sober/depressing/desolate/drab
- dangerous (64)

### Positive

- people enjoying themselves/look happy (141)
- friendly atmosphere/friendly place (18)
- makes you feel important/intelligent/confident/special (160)

### Pleasing Environment

- nice decoration/warm decoration /well decorated/decoration was very good (4)
- nice/pleasant place (25)
- Beautiful surroundings/attractive space (30)
- racetrack nice (80)
- impressive/attractive lobby (152)
- comfortable (158)

### Displeasing Environment

- not nice/sucked/unattractive décor (26)
- cheap/not elegant/trashy/too flashy (32)
- worst place (48)
- old/run down (49)
- dislike carpet/prefer no carpet/colour scheme of carpet is gaudy (123)
- marble-like stone felt sterile (159)

## Themes

- balanced/not over or under themed/well themed (24)
- no clear theme inside (66)
- heavily themed (81)

### Familiarity/Experience

- unfamiliar (119)
- familiar/looked like I'd been there before (97)

### Comparison to other venues

- Vegas Casino/American establishment (103)
- Different from Ontario casinos (104)
- some clips same as other video (93)
- popular spot/popular (150)

## Features

- lots of wood (40)
- mirrored walls/mirrored ceilings (51)
- tripee ceilings and floors/elaborate/attractive ceilings (60)
- flashy colours/ bright colours (65)
- lots of metal (73)
- low ceilings (75)
- no yellow brick road (76)
- murals (83)
- high ceilings (high ceilings)
- no clocks/no sense of time (91)
- horse statues/statues/pillars (124)
- many garbage containers (138)
- motorcycle (155)

## Preferences

- watching races the most exciting part (2)
- smoke would be a deterrent/dislike smoke (90)
- prefer tables to slots/tables more interesting to a gambler/repetitive slot machine action boring (111)
- prefer racing to slots/racing more exciting than slots (145)
- prefer going there with friends (139)
- prefer a more party atmosphere (140)
- gamblers not interested in beautiful décor/as a gambler I would find a place that does not look so expensive (130)
- beautiful décor is for tourists/would enjoy this place if a tourist (131)

## Perceptions

- modern (85)
- expensive (72)
- you could win only a small amount/would question the average winning rate (126)
- cost a tremendous amount of money/ made me wonder where all the money came from/lots of money had gone into that casino (149)