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Initial Selection between Simulated Slot Machines is allocated toward Slot Machines with a Preferred Theme: A Brief Report

Benjamin N. Witts

St. Cloud State University, benjamin.witts@gmail.com

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Correspondence concerning this article should be addressed to Benjamin N. Witts, EB-B210, St. Cloud State University, 720th Avenue, St. Cloud, MN 56301-4498 (email: bnwitts@stcloudstate.edu).

Initial Selection between Simulated Slot Machines is allocated toward Slot Machines with a Preferred Theme: A Brief Report

Benjamin N. Witts

St. Cloud State University

Many factors influence a gambler's responding with respect to slot machine selection, persistence in playing that machine, and repeated selections of that machine again on subsequent occasions. One potential area of influence over these responses that has received little attention in slot machine gambling research is slot machine branding. In this study, 7 of 8 participants allocated initial responding to a slot machine which was branded with a preferred, rather than non-preferred, theme, even though in some cases experience with payout percentages differed.

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Behavior analysts' interest in slot machine gambling is growing (Dixon, Whiting, Gunnarsson, Daar, & Rowsey, 2015; Witts, 2013). In researching slot machine gambling, several questions arise that need answering, such as the role of win frequency (e.g., Brandt & Pietras, 2008), win magnitude (e.g., Dillen & Dixon, 2008), and the influence different wins and losses have on play and preference (near-miss events, e.g., Witts et al., 2015; losses disguised as wins). In the act of slot machine gambling—that is, in the natural environment—these factors listed, as well as others, might be as Witts and Harri-Dennis suggested (2015); ancillary to other questions. For example, Witts and Harri-Dennis suggested that research should focus on understanding why a gambler selects a particular machine, remains at that machine, and returns to that machine (or the contrary on each case). In answering these three questions, variables other than those directly tied to monetary outcomes will need attention. One such area of potential influence is found in slot machine branding[1].

Parke and Griffiths (2006) pointed to a slot machine's name (it's affiliation, or *brand*) as being a potential factor influencing slot machine selection, though not necessarily persistence in gambling on that machine. As Parke and Griffiths noted, the slot machine's brand might not only influence a decision to select a particular machine, but might enhance the experience through familiar and enjoyable images and sounds related to the brand. In their example, Parke and Griffiths discussed the many ways the UK's *The Simpsons* slot machine (or *fruit machine* in the UK) incorporates the sights and sounds of that popular television show and how those sights and sounds might contribute to the slot machine gambling episode. Thus, understanding a machine's branding might prove essential in answering Witts and Harri-Dennis's (2015) three questions.

A behavioral explanation regarding just how branding influences slot machine selection and play should proceed first with exploratory descriptive analyses. With the present study, the decision to study branding came from unpublished field observations at casinos in Reno, NV and

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[1] Branding is loosely defined here, but generally encompasses any defining aspect of a slot machine, such as its relation to themes (e.g., animals or cultures) or products (e.g., television shows, movies, or board games).

Las Vegas, NV over the five preceding years. In these initial observations, I witnessed floorpersons berated as preferred slot machines were moved or removed from the floor and overheard conversation of patrons' decision-making regarding different machines (e.g., selecting a machine due to familiarity with a brand, avoiding machines due to a dislike of the brand). From these observations, a laboratory analogue was created to better control potential factors related to branding, slot machine selection, and slot machine preference. Specifically, the machine's theme (preferred or non-preferred movie or television show) and payback percentage (i.e., low vs high payback percentage [see Witts, Ghezzi, & Manson, 2015, Experiment 1]) were controlled.

Theoretical and conceptual interpretations of results were not considered prior to investigation (e.g., relational framing, conditioned reinforcement), as this study is best viewed as controlled analogue exploratory assessment. Results suggest that branding might be useful in getting a participant to a player machine, but is perhaps not enough to keep the player there. As this is the first study to explicitly explore branding in slot machine selection and persistence, this study's between subject interpretations pave the way for better-controlled within-subject analyses that test particular theoretical and conceptual factors related to these performances.

METHOD

Participants and Setting

Eight undergraduate volunteers (all female; *M* age = 21.13, *SD* = 1.25) from a mid-sized Midwestern university participated. No participant reported any problem gambling. The study was approved by an institutional review board.

The study was conducted in an 11 x 17 ft room. The room contained two desks along the long wall of the room. The first desk was 4 x 2 ft and the second 5 x 2. Both desks held a touchscreen computer monitor located on the furthest edges of the desks to maximize distance between the monitors (approximately 7 feet between monitors), thus increasing the response effort for switching machines (i.e., the participant must stand up and walk over to the other machine). Each monitor had a chair placed in front of it, and an additional chair was placed on the opposite wall midpoint between the two monitors.

Apparatus

Individualized slot machines were created with AllJ Slots 2.2 (v.2.2.287). Each slot machine consisted of three reels containing the following symbols: cherries, a bell, a bar, a flaming "7", and five images based on the slot machine's brand. Each symbol was programmed to appear twice on each reel strip, though the outcomes of each spin were pre-programmed. Each slot machine also had a high-definition brand-themed wallpaper and a custom-made winning sound that incorporated the brand (e.g., for the Friends television show machine, a portion of the show's theme song accompanied the winning sounds[2]). Slot machines were displayed on one of two Dell 20 E2014T touchscreen monitors. All other computer peripherals were placed out of reach behind the monitors. All sound levels were held constant.

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[2] All images and sounds can be obtained by contacting the author.

Procedure

Slot machines restricted betting to 3 credits per spin. Each participant was provided with 100 credits on each machine (200 total). Each win was programmed to pay out 15 credits. Participants were informed that they were competing for a $25 gift card based on their end-of-study credit totals between the two machines (see Peterson & Weatherly, 2011).

Participants signed up by contacting a research assistant. The research assistant emailed each participant two days before their arrival to the study to administer a survey. The survey asked the participant to list her favorite and least favorite movie, band/artist, and television show, and why she liked or disliked each of these. Once the survey was returned, the author created two simulated slot machines based on one category (television show = 7, movie = 1), incorporating as many elements of the description as possible (e.g., the participant who disliked SpongeBob SquarePants stated she hated his laugh; as such, SpongeBob's laugh comprised part of the winning sound for that machine).

Participants were seated mid-point between the two monitors and read instructions on how to operate the simulated slot machines and to inform them of their freedom to switch machines during the study. Based on the author's previous unpublished work, separating the monitors by seven feet increased response effort which reduced the rate of switching between machines. After this, participants played five training trials on each machine (left then right machines) before returning to their seat at the mid-point. During the five training trials, machines paid out on 20% of trials (spin 3) or 60% of trials (spin 1, 3, and 5). Table 1 shows the machine type, position, and pay out schedule during training trials. After the five training trials, all machines were programmed to pay out the same over the next 50 spins (10 of 50 spins; wins on spin 2, 5, 10, 12, 13, 18, 25, 30, 36, and 46, all selected randomly before testing with a random number generator). Once the study began, the researcher left the room and watched slot machine selections from an adjoining research room where each monitor's activity was displayed on a second monitor. The researcher recorded which machine was being engaged on each spin. A second observer was present for four participants and achieved 100% interobserver agreement.

Table 1. Participants' preferred and non-preferred slot machines, machine position, and percentage of trials paying out during testing.

Participant	Preferred			Non-Preferred		
	Movie/Show	Position	Payout	Movie/Show	Position	Payout
P1	How to Train Your Dragon	Left	20%	Wayne's World	Right	20%
P2	Friends	Right	20%	The Last Man on Earth	Left	20%
P3	Weeds	Left	20%	Teletubbies	Right	60%
P4	Friends	Right	20%	The Simpsons	Left	60%
P5	Grey's Anatomy	Left	60%	Bad Girls Club	Right	20%
P6	Doctor Who	Right	60%	SpongeBob SquarePants	Left	20%
P7	Friends	Left	60%	The Bachelor	Right	60%
P8	Grey's Anatomy	Right	60%	Adventure Time	Left	60%

RESULTS AND DISCUSSION

Figure 1 displays cumulative numbers of spins on the participant's preferred slot machine. When payout percentages during training were equivalent, all four participants allocated responding across the 50 trials near equally between the preferred and non-preferred machines. However, for all four participants, the first machine selected was the preferred machine. When payout percentages during training favored the non-preferred machine, both participants allocated responding across the 50 trials near equally between the preferred and non-preferred machines. However, one participant selected the non-preferred machine first, whereas the other selected the preferred machine first. Finally, when payout percentages during training favored the preferred machine, both participants allocated responding more toward the preferred machine (P7: 50/50; P8: 39/50). P8 also selected the preferred machine first (additional considerations are provided by participants in Table 2 as a supplemental file).
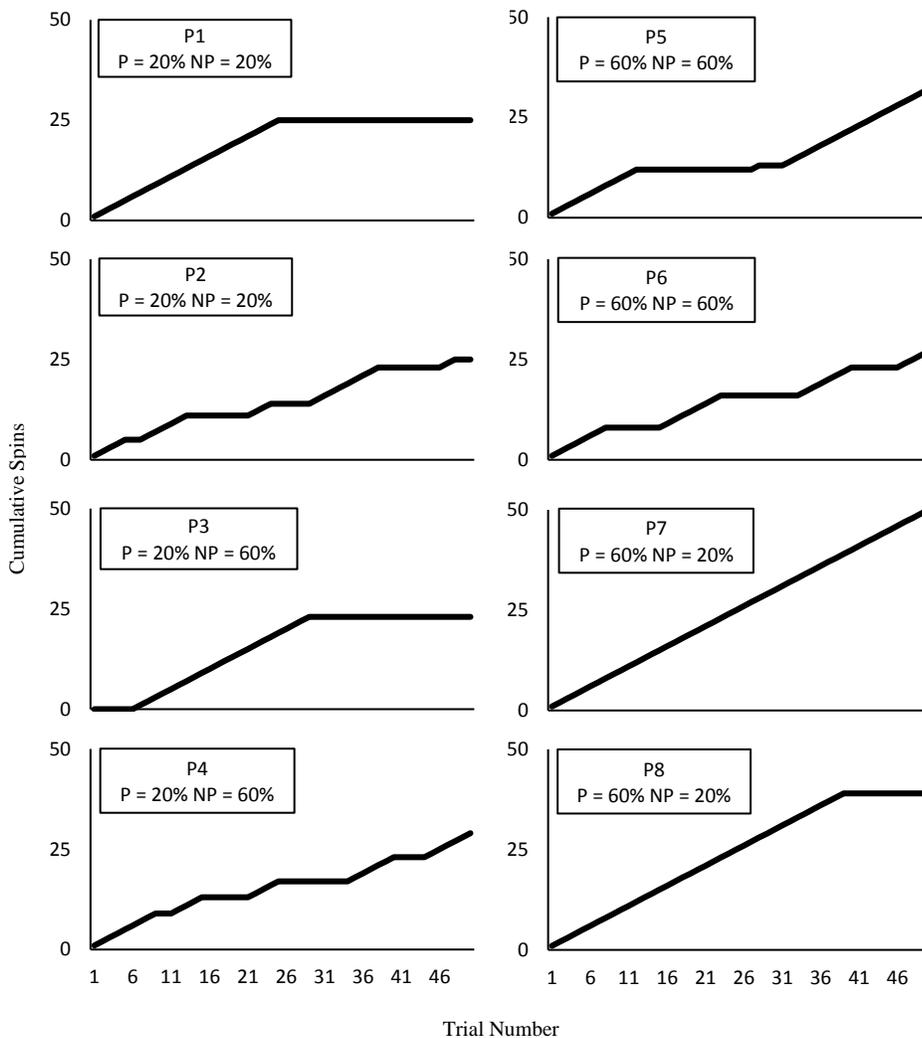

Figure 1. Cumulative spins on the preferred slot machine. Payout frequencies during training are provided and marked P for Preferred and NP for Non-Preferred.

These results reveal several interesting patterns that will require further investigation. First, 7 of 8 participants opted to play the preferred machine prior to switching. Playing preferred machines first, but not necessarily exclusively, suggests that branding might hold influence over machine selection, but not necessarily over persistence. This first finding is in line with Parke and Griffiths' (2006) predictions regarding slot machine branding's effect on machine selection.

Second, winning might have differential influence depending on whether one prefers a machine's brand or not. Consider that when the non-preferred machine paid out on 60% of training trials, both participants switched between the machines. Further, P4 started on the preferred machine despite its lower payout percentage during training, and switched eight times during the 50 trial testing period. Comparatively, when the preferred machine paid out more during training, participants remained on the preferred machine almost exclusively.

This study is limited in its power to suggest causal factors involved in the patterns observed. Partly this limitation is owed to the small number of replications within the study and its between-subjects analysis. A more refined approach will make use of systematic replications using within-subject designs.

The introduction of a brief history with each machine (i.e., the five training spins on each machine) creates another limitation. An analogue that more closely approximates the natural gambling experience would remove prior experience and allow for repeated "visits" to the gambling simulation. Coupled with this limitation is the fact that we did not assess prior gambling experience.

The inferential limitations are also owed to the exploratory and descriptive nature of the study. Consider that multiple factors could influence machine selection and switching, such as payout frequencies during training, the length of training, win magnitude, respondent reinforcer relations (e.g., see McSweeney & Murphy, 2009), and language-based factors like relationally framing some machines as "good," "fun," or "winner" based on prior experience with the brand, and others in opposition to these frames (see also Parke & Griffiths, 2006). For example, several studies have now shown that relational training can alter machine preference and performance based on correlated cues, such as color (e.g., Hoon, Dymond, Jackson, & Dixon, 2007; Zlomke & Dixon, 2006; see also Dymond & Roche, 2010). It is thus no stretch to consider the influential nature of prior histories with brands on a slot machine, which might predispose response allocation to one particular machine over another. Future research should work to better assess these relational frames prior to the study's start to better understand the influence such relations might have over preference and persistence (see Dixon, Bihler, & Nastally, 2011 for example).

In sum, these preliminary results on the effects of slot machine branding on machine selection suggest that branding is useful as a sort of attractant. However, getting a gambler to a machine is only part of the gambling situation, and the role that branding has on factors related to persistence will help give us a more complete picture of why the gambler selects that particular machine, remains at it or switches, and whether the gambler will return to it on a subsequent excursion.

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