# New educational tools for gambling machine players.

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# Purpose

- This paper will discuss the development of a series of education tools designed to teach players about the nature of gambling machines.
- Currently being evaluated.

# Background

- Erroneous beliefs about slot machines are very common
- Few people understand how they actually work
- Cleverly designed to provide
  - entertainment for the player
  - the illusion of control for the player
  - profit for the casino

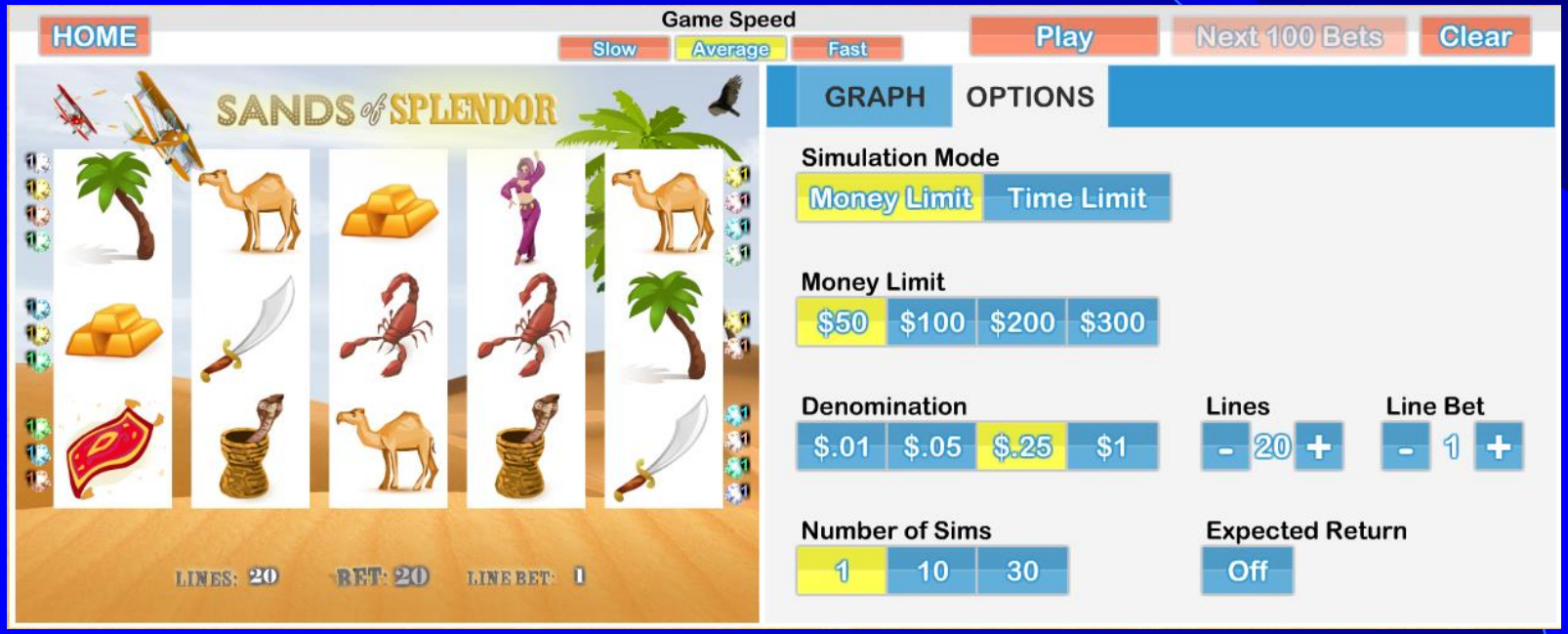
# Latest generation of educational tools.

- 4 modules each designed to address a particular issue
  - Volatility and the long term outcome
  - False wins
  - The continuously running RNG
  - Expected loss from long term play

# Module 1

- The unpredictability of slot machines outcomes
- Illustrates bet to bet volatility
- Allows the player to learn about the difference between the short term and long term experience of play
- Show program

# Layout of Module 1



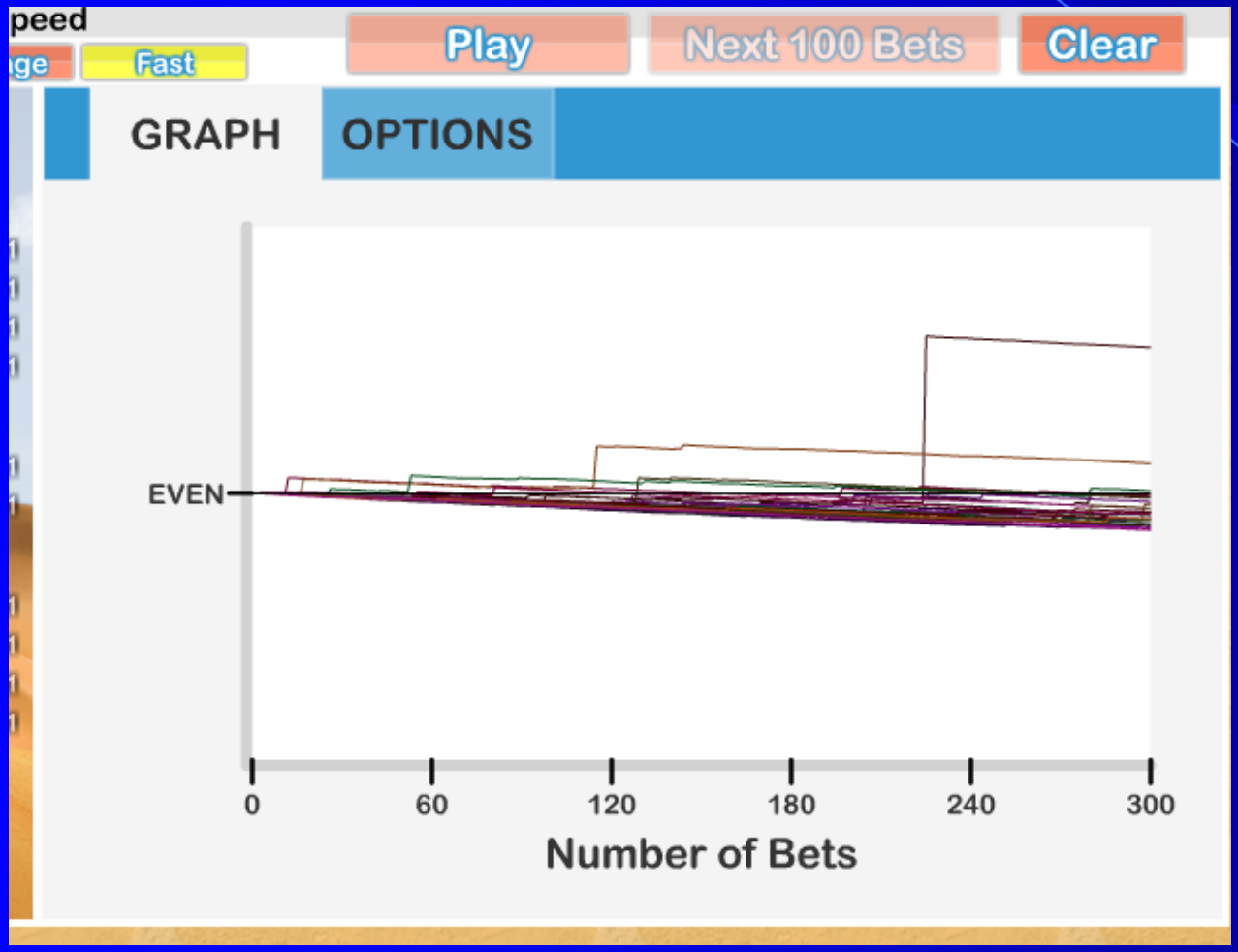
# Next 100

- One feature is the next 100 button.
- The user can ask to see the next 100 spins.
- You could ask the client what would happen next and then test out their belief.

# Volatility

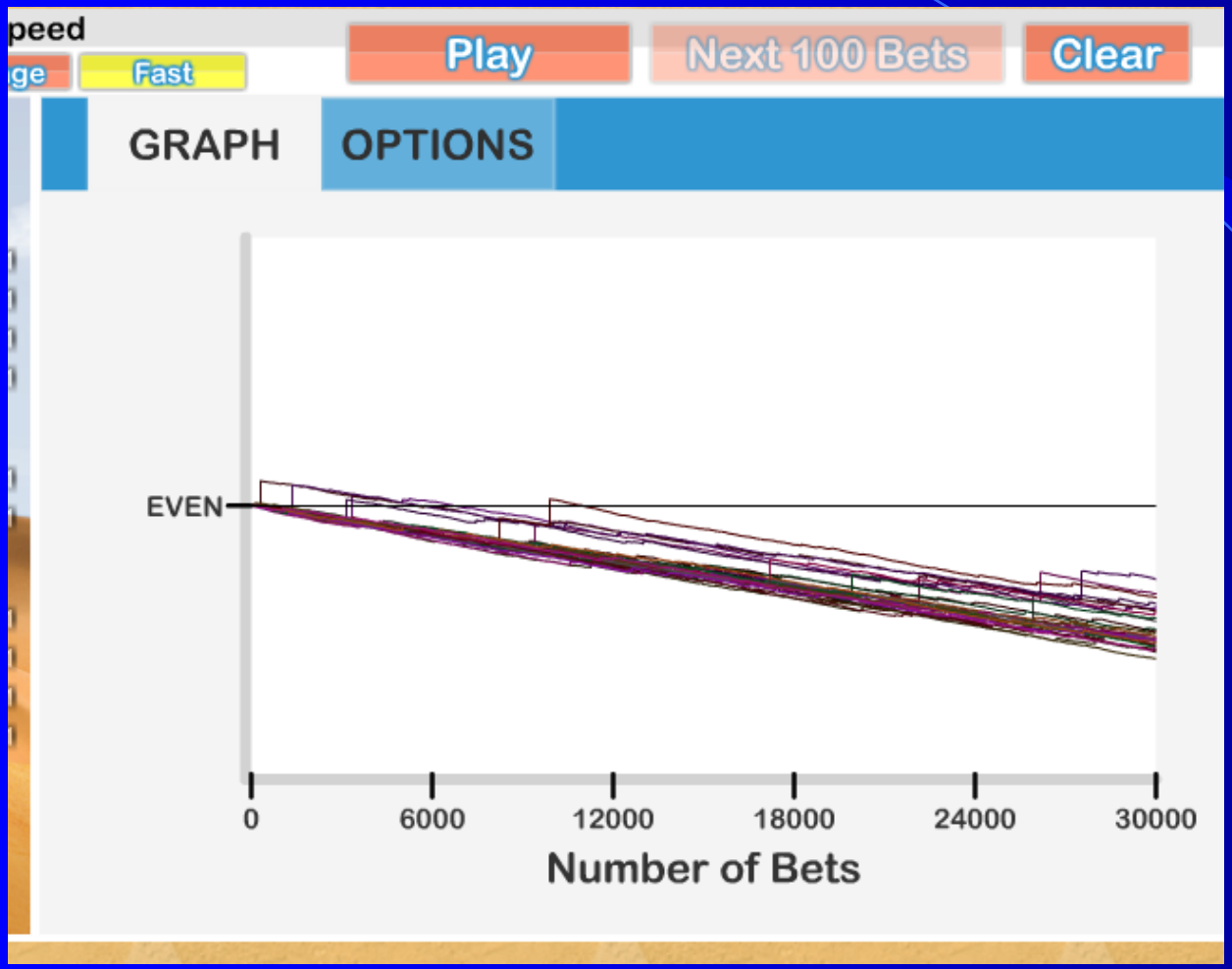
- Module 1 illustrates volatility
- Related to Turner (2011).
- Volatility is part of the reason players believe they can win.
- The volatility makes it hard to figure out the long term outcome.

# Short term volatility




- In the short term winning seems possible
- Sometimes you win

# Long term losses




- Overtime the player loses
- On this game the outcome is very dismal.

# The industry does not gamble

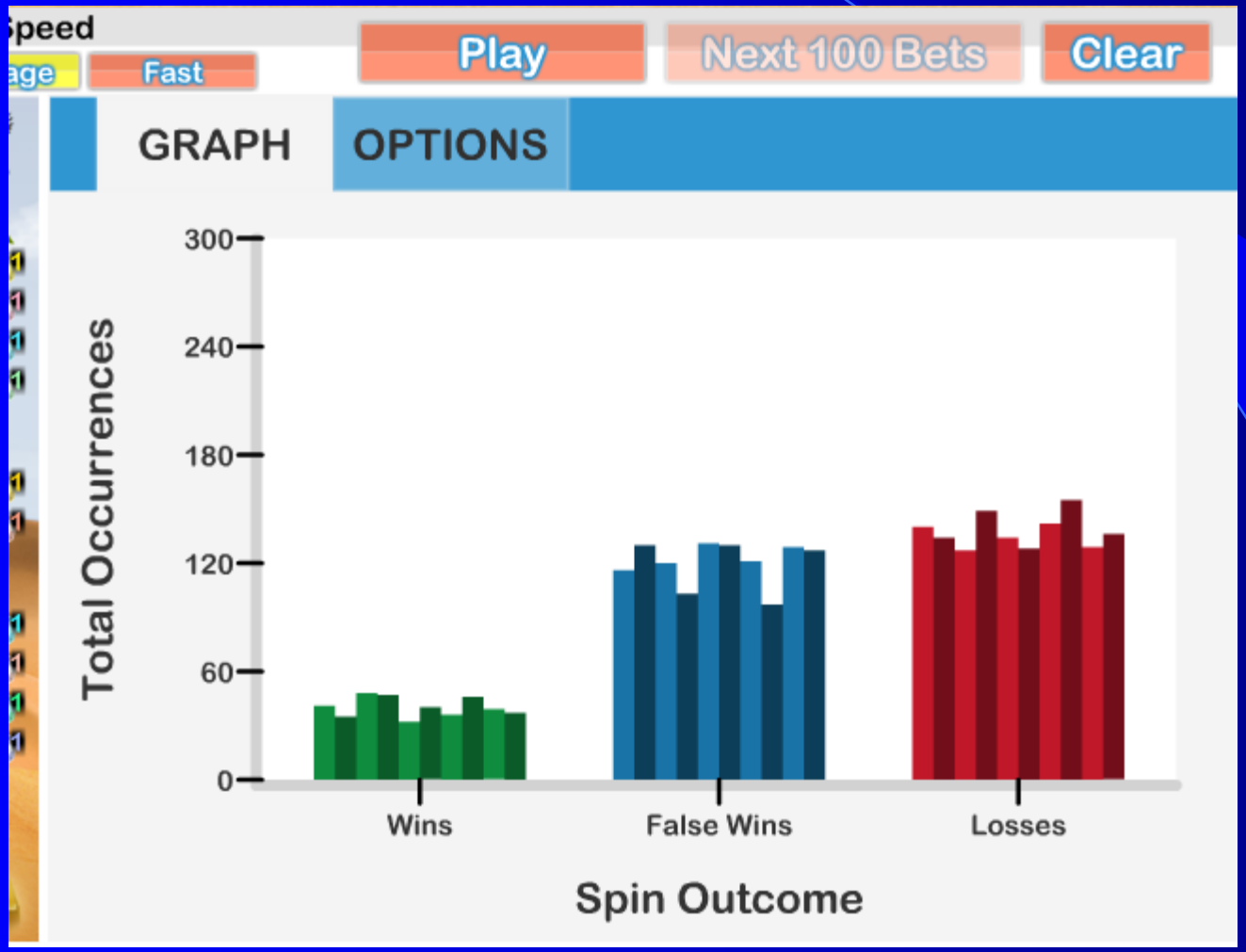
- Volatility hides the house edge.
- The games are designed so its
  - hard to figure out the house edge after a small number of spins
  - easy to figure out the house edge after about 10000 spins

# Module 2

- Illustrates the relative number of plays on which a player wins, loses, or wins less than he/she bet
- Focuses the players attention of wins that are smaller than the bet – false wins.

- Show program

# Wins, Losses, and False wins.

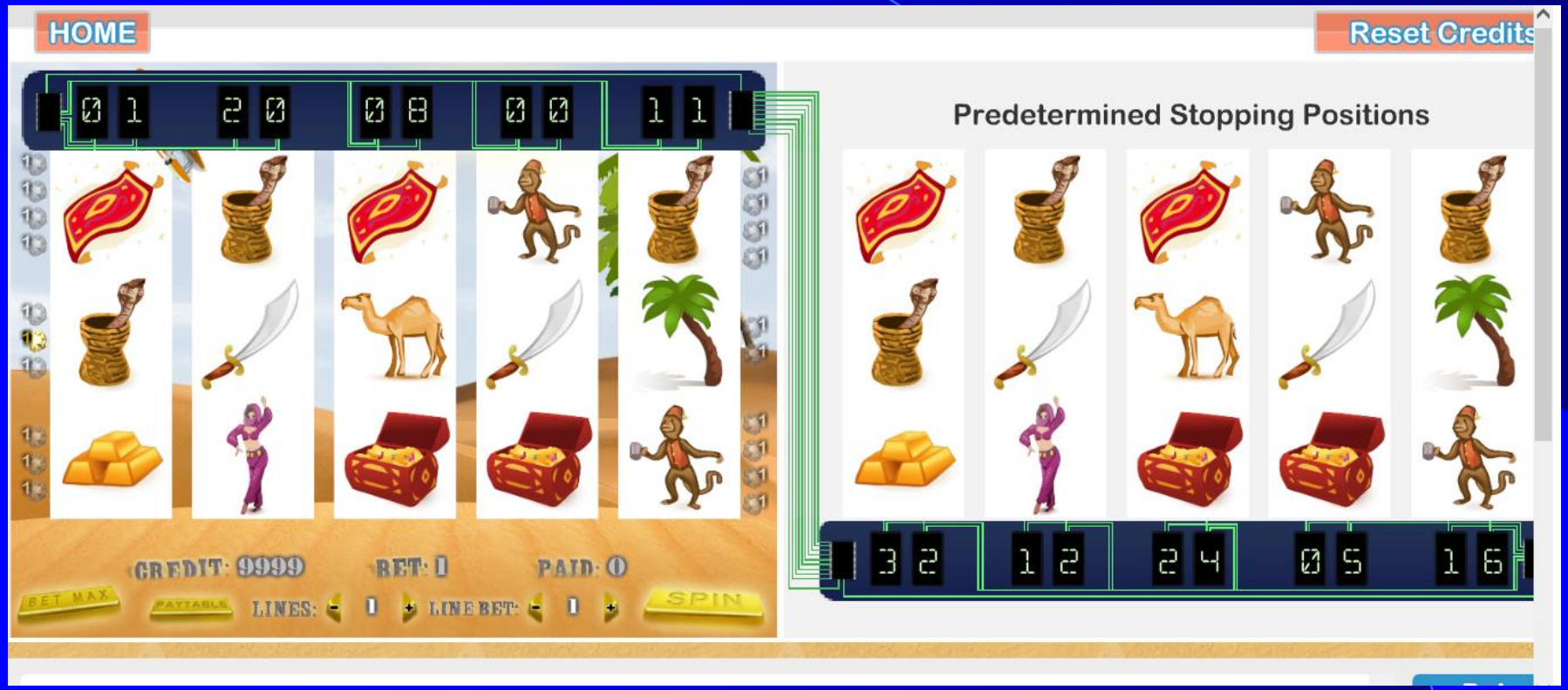


# False wins

- Illustrates that most of the time the players loses.
- A false win is when the players wins less than the amount bet.
- As lines covered increase, number of false wins increases

# Module 3

- Inside the slot machines illustrates the random number generator (RNG).
- A machine cannot produce random chance.
- RNG uses a simple math formula to produces an erratic sequence of numbers.
- Runs in cycles 3 to 4 billions numbers long.
- Could be tracked.


HOME
Reset Credits
0 1 2 0 0 8 0 0 1 1
Predetermined Stopping Positions
3 2 1 2 2 4 0 5 1 6
CREDIT: 9999
BET: 1
PAID: 0
BET MAX
PAYTABLE
LINES: 1
LINE BET: 1
SPIN

# Overcoming computational the limitations.

- Ordinary computer chip.
- Runs continuously.
- Is read when player presses spin.
- The outcome is completely unpredictable.

# Actual random chance

- Net effect of sampling from a continuously running erratic sequence is Chaos
- Complete uncertainty
- You never know what will happen
- Random chance PROTECTS the casino from smart players

- Show program

# Module 4

- A cost of play calculator can be used to estimate expected losses
- The uses can adjust the denomination, lines covered, number of credits per line, number of hours played.
- Calculates the long term expected outcome.
- Gives expected loses per day, per month, per year.

HOME
Speed of Play Demonstration
Off
Slow
Average
Fast
SANDS of SPLENDOR
Payback 92%
Denomination
$0.01
$0.05
$0.25
$1
Lines Played
- 20 +
Hours Per Week
1
3
5
10
15
20
30
Line Bet
- 1 +
Speed of Play
Slow
Average
Fast/Stop Button
Calculate
Total Bet: $1.00
Average Cost Per Hour: $48.00
Average Cost Per Month: $576.00
Average Cost Per Year: $7,488.00
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# Summary

- Illustrates
  - Short and long term outcomes.
  - How volatility hides the house edge.
  - How often false wins occur.
  - How the random number generator works.
  - How long term expected losses.

# Evaluation

- Counselors – very positive feedback
- Just started trials with clients

# How to access the program

http://www.industrycorp.ca/uw/camhwebsite/

# Related references


- Turner, N.E., (2011). Volatility, House Edge and Prize Structure of Gambling Games. *Journal of Gambling Studies*, 27, 607-623, DOI 10.1007/s10899-011-9238-0
- Turner, N.E. & Horbay, R. (2004). How do slot machines and other electronic gambling machines actually work? *Journal of Gambling Issues., Issue 11*, 10-50. http://jgi.camh.net/toc/jgi//11

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