

A behavioural account of mobile gambling

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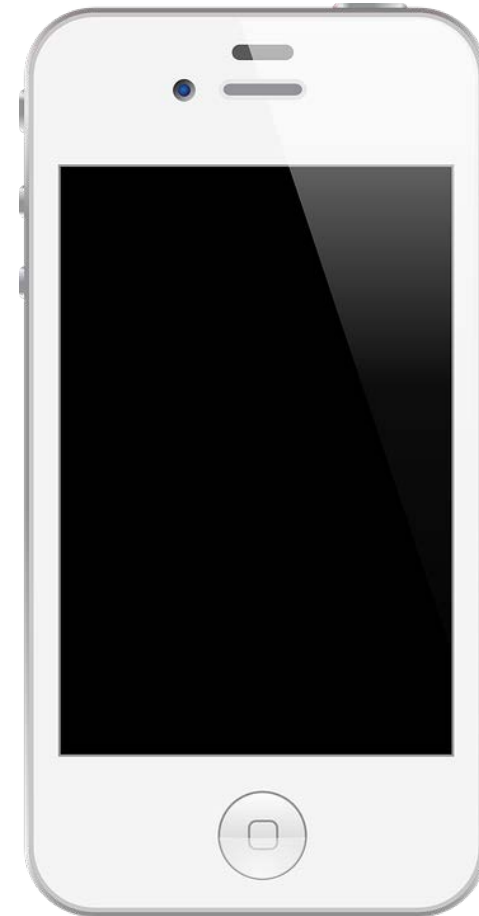
Overview of talk

- Mobile gambling:
 - Overview – games, context of use
 - Gambling and mobile use behaviours
- Experimental approach – lab demonstration
- App study on participants' phones

Mobile gambling

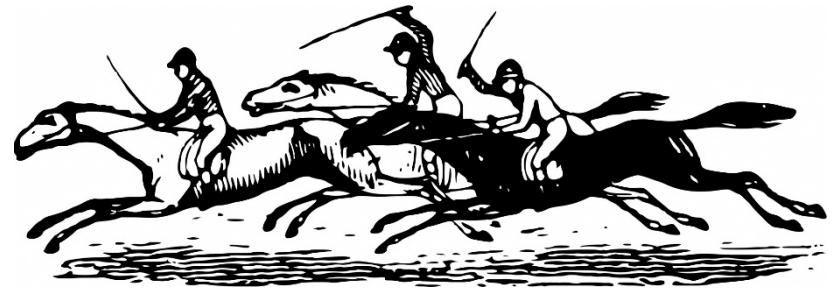
Background to mobile gambling

- Emerging market worldwide.
- UK Gambling Commission (Feb 2016):
 - 7% of population gambled on phone/tablet (past month).
 - Third most common device for online gambling.
 - More common in under 35's.
- Operators called 2014 World Cup the “first mobile tournament” due to number of bets.
- Analysis by Deloitte strongly suggests audience separate from retail operations.



Types of games

- Advertising tends to focus on sports and in-play betting.
- EU and operator reports suggest mostly betting too but a shift toward casino style games.
- This is primarily because hardware is increasing capacity for this.
- Much of this is peculiar to the UK:
 - Legislative restrictions on sports betting in many jurisdictions.
 - Many popular apps operated by UK retail bookmakers.



Mobile use behaviours

- Intermittent – people don't continuously use an app:
 - 'Habitual', 'snacking' have been used in literature.
 - People use smartphones extensively but in small sessions a few minutes long.
 - Sequences of app use also habitual e.g. music app -> news -> social media.
 - Associative learning research shows that fewer exposures are required for learning if they are spaced out more.
 - Additionally intermittent reinforcement is linked with slower extinction.



Gambling behaviour

- 'Random-ratio' schedule of reinforcement in many games.
- Near misses, losses disguised as wins operate similarly.
- Quickly elicits high rate of responding and more difficult to extinguish.
- Some lab evidence that extinction takes longer in high frequency gamblers.
- 'Fixed-interval' schedule in betting – high frequency bettors show a 'late-betting' effect.
- Driven by physiological arousal.
- Analyses of Italian sports betting data suggests late betting associated with riskier bets, lower win rate.

Behavioural summary

The combination of gambling's behavioural structure and the way smartphone use changes interactions with things is what makes mobile gambling worth further attention:

- Problem gambling models hypothesize some gamblers are purely driven by behavioural conditioning.
- Mobile behaviours space out reinforcements, potentially accelerating the transition to problematic gambling behaviours.

Many mobile (video) games make this spacing more explicit:

- Spacing is one of numerous behavioural techniques or nudges that can be used to make an app 'sticky'.
- Used in 'stamina' systems where play reduces stamina; when depleted players are forced to wait or watch ad or pay to resume.

Experimental approach

Approach

- Aim was to capture:
 - Acquisition and extinction of gambling behaviours.
 - Create involvement in money wagered in extinction.
 - Individual differences relevant to models of gambling.
- Designed a simulated gambling approach:
 - Forced choice – gamble or skip a play on a mocked-up slot machine.
 - After a certain point, win rate reduced to zero.



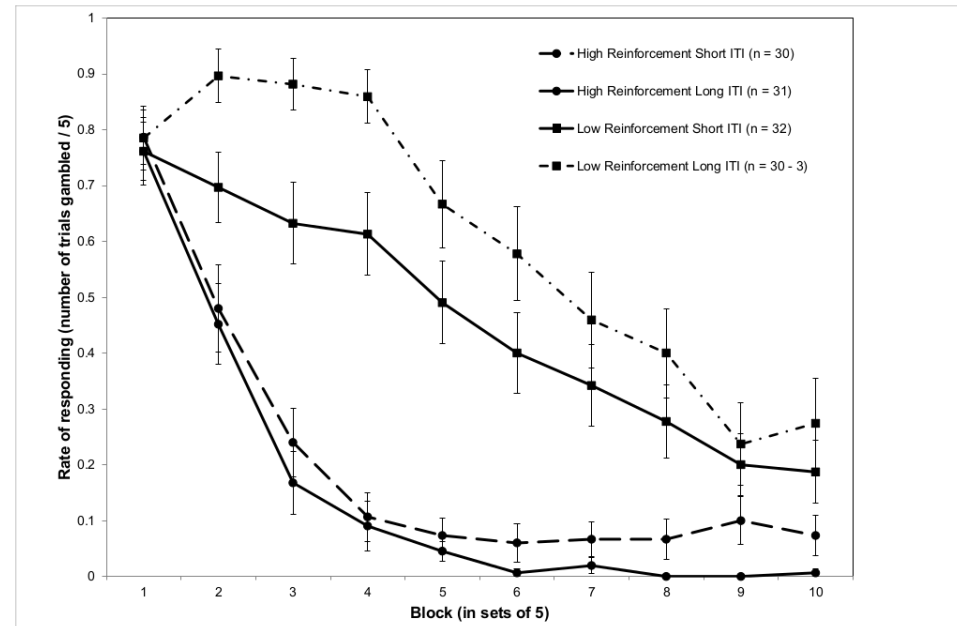
Laboratory demonstration

- Simulated slot machine game:
 - 4 groups, 30 participants per group.
 - Played on different machines with differing payouts (high v. low) and pauses between gambles (long v. short).
 - Forced choice between gambling and skipping.
 - Given feedback regardless.
 - Fifty trials of extinction when participants had won pre-specified amount of money.



Results

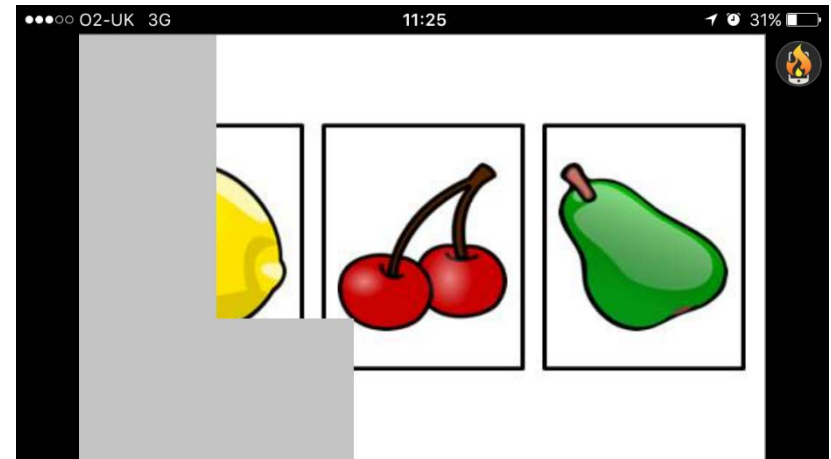
- Low payout associated with increased perseverance – partial reinforcement extinction effect.
- Increased perseverance with longer pauses – trial spacing effect.
- Interaction between two – low payout, longer gaps associated with increased play early in extinction.
- Effect of impulsivity on extinction – impulsive participants chased losses more.



App study

Approach

- We then applied this work to a field environment on participants' smartphones.
- Coded a scratch-card style app to make use of mobile interactions.
- Payout was same as low reinforcement group in lab study.
- Set an upper limit of 100 plays per day on the app.
- Otherwise participants were left to their own devices.
- Five different outcomes, differing slightly in payout.



Participants and data collection

- 30 participants:
 - Played for 9 weeks in total.
 - Participants couldn't win in the final two weeks.
 - At beginning of each session, contextual data collected:
 - Where people use app
 - Apps used before
 - Apps intended to use after.
 - GPS location taken on each play.
 - Behavioural data logged each play.
 - Participants could upload data or it was uploaded at end of study.

Psychometric data

- Questionnaire data taken at beginning and end of experiment:
 - Gambling behaviour
 - Problem gambling (PGSI)
 - Gambling cognitions (GRCS)
 - Impulsivity (BIS-11)
 - Depression (BDI)
 - Positive and Negative Affect (PANAS)
 - Sensation-seeking (SSS Form V)
 - Free-form questions about app.
 - Behavioural measure of the illusion of control.



Follow-up

- 27 returned for final debrief:
 - Couple of participants broke their phones, moved away etc.
- Very large amount of data:
 - Just over 45,000 gambles in total were recorded.
 - 894 gambling sessions (i.e. separate day, several hours apart) in total.
- Payout was 30.3% (was specified at 0.3) – wins were distributed evenly across the five payout levels.



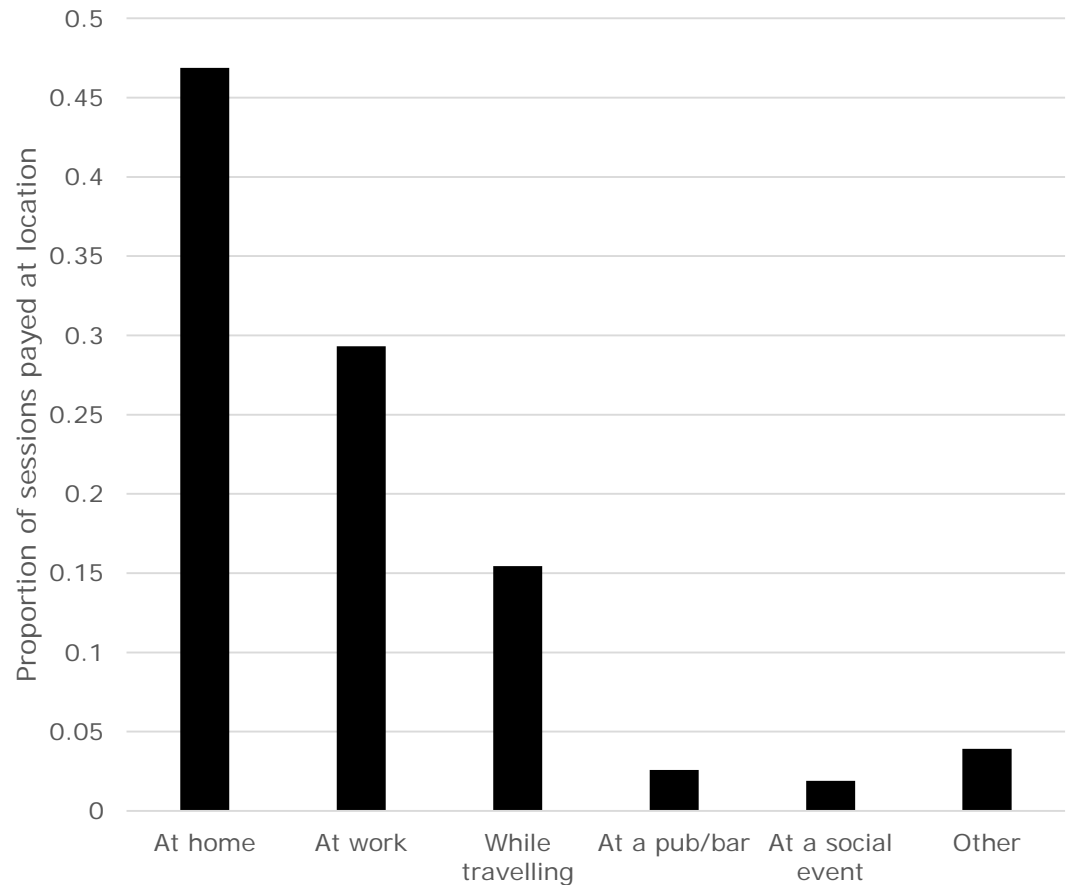
Results

- Considerable perseverance in face of mounting losses:
 - Most returned for multiple days in extinction, some for nearly one week.
 - Engagement with the app predicted perseverance in extinction.
 - Most report being aware they couldn't win, but this didn't seem to stop them playing.



Results

- Contextual data matches up with Gambling Commission data:
 - People played at home most often.
 - Second most at work (i.e. during breaks, lunch hours).
 - Third most while in transit.
 - Some use while drinking or at social events.



Results

- Engagement with other apps:
 - Two kinds of app (social media, email/work-related) were most commonly reported used before the app, or intending to use after.
 - Other kinds of app use rare, music and web browsing uncommon.
 - As a whole participants reported intending to use more apps than reporting prior app use. Exception to this was social media.
- Some evidence of ‘cascading’:
 - Use of certain apps before/after the app seemed to be very common (> 50%) for some participants.

Discussion/Summary

- The psychology of learning suggests that the use of smartphones for many interactions (e.g. gambling) will significantly affect behaviour.
- We found substantial evidence of perseverance in the face of losses in both lab and field environments.
- In the lab the extent of perseverance was amenable to change based on different schedules of reinforcement.
- Data is indicative but strongly suggests that further work on mobile use behaviours (such as in gambling) is warranted.

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