# The role of cognitive bias and skill in fruit machine gambling

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Griffiths (1994)

## Introduction / Background

Rational choice theory predicts that people will not gamble, thus it is theorised that regular gamblers gamble because they make the wrong decisions – that cognitive bias (irrational thinking) distorts their reasoning.

The aim of this study was to increase understanding of the cognitive processes and behaviour of persistent fruit machine gamblers.

## Research question

Do regular gamblers 'think' and 'behave' differently to non-regular gamblers?

## Hypothesis

That there are significant differences in the thought processes of regular and non-regular gamblers.

That there are significant differences in the behaviours of regular and non-regular gamblers.



## Method

A quasi-experimental, independent design. 2 groups of participants; 30 regular gamblers; 30 non-regular gamblers. Regular, 29 male and 1 female who play at least once week; Non-regular, 15 male and 15 female who play once a month or less; volunteer sample; recruited via a poster.

**IV** = Regular or non-regular gambler

**Objective: (behavioural) DVs** (i) Total number of plays in session, (ii) Total minutes of play in session, (iii) Total plays per minute in session, (iv) End stake – total winnings, (v) Total number of wins in session, (vi) Win rate (time) – time between wins, (vii) Win rate (plays) – number of plays between wins.

**Procedure:** In arcade (permission by arcade manager) each participant was given £3 to gamble on machine that gave 30 free gambles. Each participant was set the objective to 'stay on' the fruit machine for 60 gambles to break even and win back the £3. If they achieved 60 gambles they could choose to keep the money or carry on gambling.

**Control:** (I) Unless they objected, all participants were asked to use same machine 'FRUITSKILL';(ii) Randomly assigned to thinking aloud / non-thinking aloud, (iii) All recordings transcribed within 24 hours.

**Ethics:** Fully informed consent from volunteer sample.

## Results

14 regular gamblers managed to 'break even' (60 gambles) and 10 stayed on machine until they lost all the money. 7 non-regular gamblers broke even and 2 stayed on machine until they lost all the money. Also see Tables of subjective and behavioural findings.

## Conclusions

- Regular gamblers are more skilful, e.g. knowing the reels and when to nudge.
- Regular gamblers believe they are more skilful than they are.
- Gamblers know they will 'lose' but they play with money not for it (staying on is the objective).
- Regular gamblers make more irrational verbalisations demonstrating cognitive bias.
- Cognitive behavioural therapy could help problem gamblers.

## Results

| DV: Behavioral Findings | Non Regular NTA | Regular NTA | Non Regular TA | Regular TA |
|---|---|---|---|---|
| Total | 47.8 | 56.3 | 55.7 | 65.6 |
| Total time | 8.4 | 8.5 | 11.5 | 9.9 |
| Play rate** | 6.5 | 7.5 | 5.3 | 8.4 |
| End stake | 4.0 | 0 | 7.3 | 13.9 |
| Win | 6.1 | 8.0 | 8.3 | 6.0 |
| Win rate-time | 2.0 | 1.0 | 1.7 | 1.8 |
| Win rate-plays** | 12.5 | 7.5 | 8.0 | 14.6 |

NTA = Non think aloud    TA = Think aloud

| DV: Content analysis Examples of findings | Non Regular | Regular |
|---|---|---|
| Machine personification** | 1.14 | 7.54 |
| Explaining losses | 0.41 | 3.12 |
| Talk to machine | 0.90 | 2.64 |
| Swear at machine | 0.08 | 0.06 |
| Reference to skill | 1.47 | 5.34 |
| Verbalising confusion*** | 4.81 | 1.72 |

| Is there any skill involved? | Regular | Non Regular |
|---|---|---|
| Mostly chance | 10 | 19 |
| Equal chance/skill* | 18 | 7 |
| Knowing when machine will pay out | 8 | 0 |

Regular gamblers significantly more likely to report skill being involved