Do social casino games influence gambling cognitions in young Australians?

A randomized controlled study

Matthew W. R. Stevens
School of Psychology
The University of Adelaide

Thesis submitted in partial fulfilment of the requirement of the Bachelor of Psychological Science (Honours) Degree, and supervised by Dr. Daniel L. King and Professor Paul H. Delfabbro, University of Adelaide. Submitted 4th October, 2016.
Statement of Authorship

I certify that this manuscript does not contain material that has been accepted for the award of any other degree or diploma at any University or other tertiary institution, and that to the best of my knowledge, contains no materials previously published except where due reference is made.

Matthew W. R. Stevens
October 4th 2016

As the supervisor(s) of this thesis, I declare that this work conforms to University guidelines and is of suitable quality for submission.

Dr. Daniel L. King

Professor Paul H. Delfabbro

Word Count

The word count of this thesis is 11,959 words, not including titles, headings, abstract, references, figures, tables or appendices.
Permission to Use Honours Research Project

I give consent for this copy of my thesis, when deposited in the University library, to be available for loan and photocopying.
Acknowledgements

Firstly, I would like to thank my supervisor, Dr. Daniel King, for without whom I would still be writing motherhood and apple pie statements. Your dedication to my project has made this year possible, and for that, I cannot thank you enough. I am grateful that I had the opportunity to work with you (and tear my hair out) as much as I did.

Secondly, to my co-supervisor, Professor Paul Delfabbro, for without whom I would not be as impassioned as I am with statistics. Thank you for always replying immediately to my questions, without your knowledge and expertise I would actually have had to think for myself.

I would like to thank my partner, Brittny. Thank you for understanding the magnitude of the task before me, and helping me deal with the stress with late night ‘study’ ice cream, and watching your annoying TV shows in peace. Thank you for doing all the things you do that I don’t say thank you for; I don’t know how you put up with me.

I also would like to thank my parents. To my mum, for all the things that you do for me that I don’t show my gratitude for. And my dad, for being as dedicated to my goals in life as I am, it is truly inspiring. The fact that I can be a 26-year old living at home and you’re in no hurry to push me out is humbling.

Lastly, I want to thank my friends, who are quite literally the best bunch of people I have ever met. Without you all I would probably be another statistic, and to all my fellow Honours students, but especially Grem, Jess and Joseph, and indeed, all my participants. Without you guys this year would absolutely none of this would have been possible.
Table of Contents

Statement of Authorship ................................................................................................. ii
Word Count ................................................................................................................... iii
Permission to Use Honours Project ............................................................................. iii
Acknowledgements ...................................................................................................... iv
List of Tables and Figures ............................................................................................ vii
List of Appendices ......................................................................................................... viii

Research Report

Abstract ......................................................................................................................... 9

Introduction ................................................................................................................... 10

2.1 The Role of Cognition in Gambling ................................................................. 13
2.2 The Role of Attitudes in Gambling ................................................................. 16
2.3 The Effects of Spending Money in SCGs ......................................................... 17
2.4 The Harms Associated with Problem Gambling ........................................... 18
2.5 The Present Study .............................................................................................. 20

Method ......................................................................................................................... 21

3.1 Research Design ................................................................................................. 21
3.2 Participant Flow .................................................................................................. 22
3.3 Participants .......................................................................................................... 22
3.4 Materials .............................................................................................................. 23

3.4.1 Gambling Cognitions ...................................................................................... 24
3.4.2 Gambling Attitudes ......................................................................................... 25
3.4.3 Problem Gambling ......................................................................................... 25
3.4.4 Psychological Distress ..................................................................................... 25

3.5 Social Casino Game ............................................................................................ 26
List of Tables and Figures

Table 1 – Descriptive Statistics and Percentages for Participant Demographic Information by Group .......................................................... 54

Table 2 – Means and Standard Deviations for Baseline Scores on GAS, GRCS, PGSI, and DASS-21 by Group ............................................................................................................................................. 55

Table 3 – Pearson’s r Product Moment Correlation Matrix for Association between Scores on GAS, GRCS, PGSI and DASS-21 at Baseline .................................................................................................. 56

Table 4 – Results of Two-Way Repeated Measures ANOVA for Scores on GAS, GRCS, and PGSI .............................................................................................................................................. 57

Figure 1 – Flow of participants through stages of study .......................................................... 58

Figure 2 – Line Graph of changes in mean scores on the GAS-General scale ................. 59

Figure 3 – Line Graph of changes in mean total scores on the GRCS scale ................. 60

Figure 4 – Line Graph of changes in mean scores on the PGSI ......................................... 61
List of Appendices

Appendix A  Email templates of study instructions sent to participants after baseline survey
Appendix B  Email templates with link to post-test survey sent to participants
Appendix C  Complete baseline survey, including demographics, GAS, GRCS, PGSI and DASS-21 scales
Appendix D  Post-test surveys (not including GAS, GRCS, and PGSI scales)
Appendix E  Screen-captures of ‘Slotomania’
  Figure E1 – Slotomania welcome screen-capture
  Figure E2 – Slotomania in-game screen-capture
Appendix F  Auxiliary analyses for determination of equivalency of groups at baseline for demographics, internet and social media usage, gambling activity and social gaming activity, psychological distress and all outcome measures.
  Table F1 – Descriptive statistics of internet and social media usage
  Table F2 – Descriptive statistics of gambling activity
  Table F3 – Descriptive statistics of social gaming activity
Appendix G  Analysis of univariate and multivariate outliers
Appendix H  Line graphs indicating changes in mean scores over time across group
  Figure H1 – Line graph for GAS-Casino scores
  Figure H2 – Line graph for GAS-Horseracing scores
  Figure H3 – Line graph for GAS-Lottery scores
  Figure H4 – Line graph for GAS-Risk scores
  Figure H5 – Line graph for ‘Gambling Expectancies’ scores
  Figure H6 – Line graph for ‘Illusion of Control’ scores
  Figure H7 – Line graph for ‘Predictive Control’ scores
  Figure H8 – Line graph for ‘Inability to stop’ scores
  Figure H9 – Line graph for ‘Interpretive Bias’ scores
Appendix I  Results of experimental experience questions at post-test
Appendix J  Transcription of participant comments
Abstract

**Objective:** Social casino games (SCGs) are free-to-play online gambling-themed games that structurally resemble gambling and involve purchasable virtual credits, but do not offer a financial payout and thus are not legally considered gambling activities. The aim of this study was to examine whether playing SCGs had any impact on gambling attitudes (general opinions about gambling) and cognitions (specific gambling-related biases). **Method:** This study employed a test-retest randomized controlled design. A total of 77 first-year psychology students with no previous SCG experience were recruited. An online survey measuring gambling attitudes and cognitions was administered, and then participants were randomly allocated to one of three groups: (1) free-play (play SCG with free credit); (2) financed (play SCG with $20 purchased credit); and (3) control (no SCG play). The experimental groups were required to download ‘Slotomania’, and play for 20 minutes per day over a three-day period. A post-test survey assessed gambling attitudes and cognitions after three days. **Results:** A repeated-measures mixed ANOVA assessed changes in cognition outcomes from baseline to post-test. All three groups reported significant increases from baseline for gambling attitudes, but there were no significant group differences in cognitions. A chi-square analysis determined SCG-playing significantly decreased future intent to gamble, but did not alter general views of gambling. **Conclusions:** SCG-playing did not affect participants’ attitudes towards or cognitions about gambling. Although this work is preliminary, it demonstrates the role of SCGs and financial investment in gambling migration is complex and warrants further investigation.

**Keywords:** Social Casino Games, Gambling, Attitudes, Cognitions