TECHNOLOGICAL TRENDS, BEHAVIORAL TRACKING, SOCIAL MEDIA, AND IMPLICATIONS FOR SOCIAL RESPONSIBILITY TOOLS IN GAMBLING

DR MARK GRIFFITHS
Professor of Gambling Studies

International Gaming Research Unit
mark.griffiths@ntu.ac.uk
BRIEF OVERVIEW OF PRESENTATION

• Social gaming (the contextual factors)
• Technological trends in gambling
• Behavioral tracking
• Gambling in the social media
• Conclusions
THE RISE OF SOCIAL NETWORKING

• 31 million users of Facebook are registered as living in the UK and are over 18 years of age.

• According to the Experian Hitwise study, UK visitors have an average FB session time of 22 minutes.

• Study also revealed that a quarter of those visiting Facebook visit and entertainment website such as games and music, immediately after leaving the website.

• Shows good market size to access and that users could be quite receptive to gaming on the site.
SOCIAL NETWORKING IS PROFITABLE

- Facebook takes 30% income generated from payments in games such as Farmville and Zynga Poker.

- In June 2013, Facebook reported that 250 million people a month were playing social games.

Source: Flurry Analytics, n = 63,727
# Top 25 Facebook Games by MAU

## May 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>Game</th>
<th>Developer</th>
<th>MAU</th>
<th>MAU Change</th>
<th>(Last Month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Candy Crush Saga</td>
<td>King</td>
<td>43,469,305</td>
<td>-2,070,442</td>
<td>45,539,747</td>
</tr>
<tr>
<td>2</td>
<td>FarmVille 2</td>
<td>Zynga</td>
<td>38,437,500</td>
<td>-1,830,777</td>
<td>40,268,277</td>
</tr>
<tr>
<td>3</td>
<td>Texas HoldEm Poker</td>
<td>Zynga</td>
<td>30,218,750</td>
<td>-4,418,118</td>
<td>34,636,868</td>
</tr>
<tr>
<td>4</td>
<td>Pet Rescue Saga</td>
<td>King</td>
<td>24,717,139</td>
<td>1,800,234</td>
<td>22,916,905</td>
</tr>
<tr>
<td>5</td>
<td>Dragon City</td>
<td>Social Point</td>
<td>23,343,750</td>
<td>3,628,664</td>
<td>19,715,086</td>
</tr>
<tr>
<td>6</td>
<td>Diamond Dash</td>
<td>Wooga</td>
<td>22,731,250</td>
<td>-3,163,165</td>
<td>25,894,415</td>
</tr>
<tr>
<td>7</td>
<td>Bubble Witch Saga</td>
<td>King</td>
<td>18,818,750</td>
<td>773,324</td>
<td>18,045,426</td>
</tr>
<tr>
<td>8</td>
<td>CoasterVille</td>
<td>Zynga</td>
<td>17,562,500</td>
<td>-7502047</td>
<td>25,064,547</td>
</tr>
<tr>
<td>9</td>
<td>Bubble Safari</td>
<td>Zynga</td>
<td>16,343,750</td>
<td>-2,801,687</td>
<td>19,145,437</td>
</tr>
<tr>
<td>10</td>
<td>Criminal Case</td>
<td>Pretty Simple</td>
<td>15,862,500</td>
<td>7003479</td>
<td>8,859,021</td>
</tr>
<tr>
<td>11</td>
<td>Words With Friends</td>
<td>Zynga</td>
<td>14,262,500</td>
<td>420,689</td>
<td>13,841,811</td>
</tr>
<tr>
<td>12</td>
<td>ChefVille</td>
<td>Zynga</td>
<td>12,762,500</td>
<td>-2,906,115</td>
<td>15,668,615</td>
</tr>
<tr>
<td>T13</td>
<td>Pool Live Tour</td>
<td>Geewa</td>
<td>12,050,000</td>
<td>-914,421</td>
<td>12,964,421</td>
</tr>
<tr>
<td>T13</td>
<td>Farm Heroes Saga</td>
<td>King</td>
<td>12,050,000</td>
<td>-914,421</td>
<td>NA</td>
</tr>
<tr>
<td>15</td>
<td>8 Ball Pool</td>
<td>Miniclip.com</td>
<td>11,837,500</td>
<td>372,500</td>
<td>11,465,000</td>
</tr>
<tr>
<td>16</td>
<td>Top Eleven</td>
<td>Nordeus LLC</td>
<td>10,943,750</td>
<td>1,567,462</td>
<td>9,376,288</td>
</tr>
<tr>
<td>17</td>
<td>FarmVille</td>
<td>Zynga</td>
<td>10,725,000</td>
<td>-510,831</td>
<td>11,235,831</td>
</tr>
<tr>
<td>18</td>
<td>Village Life</td>
<td>Playdemic</td>
<td>10,087,500</td>
<td>450,321</td>
<td>9,637,179</td>
</tr>
<tr>
<td>19</td>
<td>Angry Birds Friends</td>
<td>Rovio</td>
<td>9,781,250</td>
<td>-786,717</td>
<td>10,567,967</td>
</tr>
<tr>
<td>20</td>
<td>Zynga Slingo</td>
<td>Zynga</td>
<td>9,712,500</td>
<td>-2,132,266</td>
<td>11,844,766</td>
</tr>
<tr>
<td>21</td>
<td>Bejeweled Blitz</td>
<td>EA PopCap</td>
<td>9,350,000</td>
<td>-825,106</td>
<td>10,175,106</td>
</tr>
<tr>
<td>22</td>
<td>SongPop</td>
<td>FreshPlanet</td>
<td>8,950,000</td>
<td>-1,781,659</td>
<td>10,731,659</td>
</tr>
<tr>
<td>23</td>
<td>Bubble Safari Ocean</td>
<td>Zynga</td>
<td>8,593,750</td>
<td>-409,320</td>
<td>9,003,070</td>
</tr>
<tr>
<td>24</td>
<td>Tetris Battle</td>
<td>Tetris Online Inc.</td>
<td>8,287,500</td>
<td>-486,401</td>
<td>8,773,901</td>
</tr>
<tr>
<td>25</td>
<td>Bubble Island</td>
<td>Wooga</td>
<td>8,156,250</td>
<td>331,764</td>
<td>7,824,486</td>
</tr>
<tr>
<td>Rank</td>
<td>Game</td>
<td>Developer</td>
<td>DAU</td>
<td>DAU Change</td>
<td>(Last Month)</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------</td>
<td>------------</td>
<td>-----------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>1</td>
<td>Candy Crush Saga</td>
<td>King</td>
<td>14,997,540</td>
<td>-152,326</td>
<td>15,149,866</td>
</tr>
<tr>
<td>2</td>
<td>FarmVille 2</td>
<td>Zynga</td>
<td>6,621,892</td>
<td>-1,569,834</td>
<td>8,191,726</td>
</tr>
<tr>
<td>3</td>
<td>Pet Rescue Saga</td>
<td>King</td>
<td>6,393,010</td>
<td>862,984</td>
<td>5,530,026</td>
</tr>
<tr>
<td>4</td>
<td>Dragon City</td>
<td>Social Point</td>
<td>5,800,709</td>
<td>717,701</td>
<td>5,083,008</td>
</tr>
<tr>
<td>5</td>
<td>Criminal Case</td>
<td>Pretty Simple</td>
<td>5,474,423</td>
<td>1,242,854</td>
<td>4,231,569</td>
</tr>
<tr>
<td>6</td>
<td>Texas HoldEm Poker</td>
<td>Zynga</td>
<td>5,031,901</td>
<td>-827,724</td>
<td>5,859,625</td>
</tr>
<tr>
<td>7</td>
<td>Words With Friends</td>
<td>Zynga</td>
<td>4,681,100</td>
<td>-47,544</td>
<td>4,728,644</td>
</tr>
<tr>
<td>8</td>
<td>Farm Heroes Saga</td>
<td>King</td>
<td>4,333,564</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>9</td>
<td>Top Eleven</td>
<td>Nordeus LLC</td>
<td>3,800,115</td>
<td>473,071</td>
<td>3,327,044</td>
</tr>
<tr>
<td>10</td>
<td>Diamond Dash</td>
<td>Wooga</td>
<td>3,499,783</td>
<td>-338,928</td>
<td>3,838,711</td>
</tr>
<tr>
<td>11</td>
<td>Bubble Witch Saga</td>
<td>King</td>
<td>3,136,681</td>
<td>-92,316</td>
<td>3,228,997</td>
</tr>
<tr>
<td>12</td>
<td>Bejeweled Blitz</td>
<td>EA PopCap</td>
<td>2,722,494</td>
<td>-277,652</td>
<td>2,750,146</td>
</tr>
<tr>
<td>13</td>
<td>8 Ball Pool</td>
<td>Miniclip.com</td>
<td>2,389,662</td>
<td>-121,411</td>
<td>2,666,952</td>
</tr>
<tr>
<td>14</td>
<td>2013</td>
<td>Halfquest</td>
<td>2,063,823</td>
<td>-479,211</td>
<td>2,185,234</td>
</tr>
<tr>
<td>15</td>
<td>Pool Live Tour</td>
<td>Geewa</td>
<td>1,988,223</td>
<td>-479,211</td>
<td>2,467,434</td>
</tr>
<tr>
<td>16</td>
<td>Slotomania</td>
<td>Playtika</td>
<td>1,925,968</td>
<td>-319,392</td>
<td>2,245,360</td>
</tr>
<tr>
<td>17</td>
<td>Bubble Safari</td>
<td>Zynga</td>
<td>1,854,174</td>
<td>-230,611</td>
<td>2,084,785</td>
</tr>
<tr>
<td>18</td>
<td>CoasterVille</td>
<td>Zynga</td>
<td>1,811,325</td>
<td>-512,853</td>
<td>2,324,178</td>
</tr>
<tr>
<td>19</td>
<td>DoubleDown Casino</td>
<td>DoubleDown</td>
<td>1,779,693</td>
<td>38,651</td>
<td>1,741,042</td>
</tr>
<tr>
<td>20</td>
<td>SongPop</td>
<td>FreshPlanet</td>
<td>1,698,368</td>
<td>-228,159</td>
<td>1,926,527</td>
</tr>
<tr>
<td>21</td>
<td>Monster World</td>
<td>Wooga</td>
<td>1,680,946</td>
<td>11,188</td>
<td>1,669,758</td>
</tr>
<tr>
<td>22</td>
<td>FarmVille</td>
<td>Zynga</td>
<td>1,652,969</td>
<td>-144,800</td>
<td>1,797,769</td>
</tr>
<tr>
<td>23</td>
<td>Pearl's Peril</td>
<td>Zynga</td>
<td>1,611,845</td>
<td>442,809</td>
<td>1,169,036</td>
</tr>
<tr>
<td>24</td>
<td>Bubble Island</td>
<td>Wooga</td>
<td>1,591,553</td>
<td>125,374</td>
<td>1,466,179</td>
</tr>
<tr>
<td>25</td>
<td>Pengle</td>
<td>CookApps</td>
<td>1,530,416</td>
<td>308,689</td>
<td>1,221,727</td>
</tr>
</tbody>
</table>
Mobile Social Gamers vs. Traditional Gamers by Age

- **Under 18**
  - Traditional Gamer: 20%
  - Mobile Social Gamer: 10%

- **18 - 49**
  - Traditional Gamer: 50%
  - Mobile Social Gamer: 80%

- **Over 50**
  - Traditional Gamer: 30%
  - Mobile Social Gamer: 10%

**Average Gamer Age**
- Traditional: 34
- Mobile Social: 28

*Sources: Flurry Analytics, *Electronic Software Association*
SOCIAL GAMING: CONTEXTUAL FACTORS
(Griffiths, 2012)

• No accepted definition of what social gaming is

• Lines are beginning to blur between social gaming and gambling

• Online gambling operators and software developers (e.g., Bwin, Party Gaming, PlayTech, etc.) are positioning themselves for entry into the social gaming market, and vice-versa (e.g., Zynga).

• New types of social gaming and gambling-like experiences that people of all ages are now being exposed to and raises various moral, ethical, legal and social issues.
• Gamesys’ brand **Jackpot Joy** was one of the first movers from real money gambling into freemium social gaming

• Collectively, the company’s casino and slots **Facebook Apps** have in excess of 1.7 million monthly users.

• **Zynga Poker** is one of the single largest played games on **Facebook**

• **Bwin** have invested $50 million in a Social Gaming Division
SOCIAL GAMING: DRIVERS AND CONSTRAINTS

DRIVERS
• Desire to gamble
• Growing disposable income
• Convenience/availability
• Technology improvement
• Increasing SN penetration
• SN user profiles
• Usability

CONSTRAINTS
• Regulation
• Age verification
• User confidence
• Payment processing
• [Network speed]
INCREASE IN GAMBLING CONVERGENCE/CROSS FERTILIZATION OF TECHNOLOGIES

• Technology hardware is becoming increasingly convergent and there is increasing multi-media integration (De Freitas & Griffiths, 2008; Griffiths, 2008; King, Delfabbro & Griffiths, 2010).

• People of all ages are spending more time interacting with technology (Internet, VGs, interactive television, mobile phones)

• There is also convergent content. This includes:
  • gambling including video game elements
  • video games including gambling elements
  • gambling and gaming via social media
  • online penny auctions that have gambling elements
  • television programming with gambling-like elements
TECHNOLOGICAL TRENDS IN GAMBLING
(Griffiths, 2011)

• Feminization of remote gambling

• Increase in numbers of digital natives

• Increase of empirical research into remote gambling
• Increase in mobile gaming

• Increase in gambling convergence and cross-fertilization of technologies

• Increase in technological advertising and marketing of gambling
• Increase in online help and therapy for problem gamblers

• Emergence of new type of problem gambling

• Behavioral tracking
IS ONLINE GAMBLING MORE ‘DANGEROUS’ THAN OFFLINE GAMBLING?

A question that is often asked by policy makers is whether online gambling is more dangerous or harmful than offline gambling?

The answer to this question depends on what the definitions are of ‘harmful’ or ‘dangerous’

Or (more importantly) whether online gambling is more harmful or dangerous to particular kinds of people (e.g., problem gamblers).
• Number of different approaches to collecting data about online gamblers.

• Most of the published studies have used one of two approaches – behavioral tracking studies and self-report studies (e.g., survey studies).

• Both of these approaches have advantages and disadvantages. These are now briefly evaluated:
BEHAVIORAL TRACKING STUDIES VS. SELF-REPORT STUDIES

• Behavioral tracking data provides a totally objective record of an individual’s gambling behavior on a particular online gambling website.

• (Individuals in self-report studies may be prone to social desirability factors, unreliable memory, etc.).

• Behavioral tracking data provide a record of events and can be revisited after the event itself has finished (whereas self-report studies cannot).
• Behavioral tracking data usually comprise very large sample sizes whereas self-report studies are based on much smaller sample sizes.

• Behavioral tracking data collected from only one gambling site tells us nothing about the person’s Internet gambling in general (as Internet gamblers typically gamble on more than one site)

• Behavioral tracking data does not account for the fact that more than one person can use a particular account
• Behavioral tracking data always comes from unrepresentative samples (i.e., the players that use one particular internet gambling site)

• Whereas the very best self-report studies (e.g., the BGPS in Great Britain) use random and nationally representative samples.

• Behavioral tracking data tell us nothing about why people gamble (whereas self-report data can)
• Behavioral tracking data cannot be used for comparing online and offline gambling as data are only collected on one group of people (i.e., online gamblers).

• Behavioral tracking data cannot be used for making comparisons about whether online gambling is safer or more dangerous than offline gambling as data are only collected on one group of people (i.e., online gamblers).

• Self-report methods can be used to compare two (or more) groups of gamblers and is the only method we currently have to infer to what extent one medium of gambling may or may not be more or less safe.
• Some self-report studies have the potential to use nationally representative samples of gamblers.

• Whereas behavioral tracking studies rely on self-selected samples of gamblers who use the online gambling website in question.

• Behavioral tracking data tell us nothing about the relationships between gambling and other behaviors (e.g. alcohol and tobacco use, health).
• Behavioral tracking data cannot examine problem gambling using current diagnostic criteria (whereas self-report studies can).

• In fact, behavioral tracking data studies cannot tell us anything about problem gambling as this is not a variable that has been examined in any of the published studies to date.
DSM-IV CRITERIA FOR PATHOLOGICAL GAMBLING

• Is preoccupied with gambling (e.g. reliving past experiences, planning next venture, thinking of ways to get money)

• Needs to gamble with increasing amounts of money in order to achieve the desired excitement

• Repeated unsuccessful efforts to control, cut back, or stop gambling

• Is restless or irritable when trying to cut down or stop gambling

• Gambles as a way of escaping from problems or of relieving a dysphoric mood (e.g. helplessness, guilt, anxiety, depression)
DSM-IV CRITERIA FOR PATHOLOGICAL GAMBLING

• After losing money gambling, often returns another day to get even (“chasing” one’s losses)

• Lies to family members, therapist, or others to conceal extent of involvement with gambling

• Has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling

• Has jeopardised or lost a significant relationship, job, or educational or career opportunity because of gambling

• Relies on others to provide money to relieve a desperate financial situation caused by gambling
CAN INTERNET PROBLEM GAMBLING BE IDENTIFIED USING DSM-IV CRITERIA?
(Griffiths, 2009; Griffiths & Whitty, 2010)

- Salience/Preoccupation (good possibility)
- Tolerance (possibly)
- Relapse (possibly)
- Withdrawal (unlikely)
- Escape from reality (unlikely)
- Chasing losses (definitely)
- Conceal Involvement (unlikely)
- Unsociable Behaviour (unlikely)
- Ruin a Relationship/Opportunity (unlikely)
- Bail-out (slight possibility)
ACTUAL ONLINE PROBLEM GAMBLING BEHAVIOUR?

- Chasing losses
- Total preoccupation with gambling
- Increase of gambling behaviour (time & money) over time
  - Playing a variety of stakes
  - Playing a variety of games
- Player ‘reload’ within gambling session
- Frequent payment method changes
- Verbal aggression in chat rooms
- Constant complaints to customer services
- Most importantly it is *change in usual behaviour*
• Online SN phenomenon has spread rapidly in the UK (and elsewhere)

• Playing games such as *Farmville* or poker via social networking sites like *Facebook* have become commonplace (Griffiths, 2010; Griffiths & Parke, 2010).

• Gamesys says that 30,000 users play its bingo and slots game on *Facebook*
• On August 7 (2012), Facebook hosted a gambling game (Bingo Friendzy) that allowed users to win jackpots up to £50,000 of real money.

• Gambling via SN sites can potentially generate rapid increases in financial revenue and please the Facebook shareholders.
• Any social games played on SN sites have gambling-like elements – even if no money is involved (Griffiths, et al, 2011; 2012; King, et al, 2010).

• SN games provide pleasure, accomplishment and friendship (Griffiths, 2012)

• Even when games don’t involve money (e.g., playing poker for points on Facebook) - it introduces players (e.g., youth) to the principles and excitement of gambling (Griffiths & Parke, 2010).
• Companies like Zynga have been accused of leveraging the mechanics of gambling to build their gaming empire (Griffiths, 2012).

• One of the key psychological ingredients in both gambling (e.g., slot machine) and social gaming is the use of operant conditioning and random reinforcement schedules.
• Getting rewards every time someone gambles or plays a game leads to people becoming bored quickly.

• Small unpredictable rewards leads to highly engaged and repetitive behaviour for those players. In a minority of cases, this may lead to addiction (Parke & Griffiths, 2010).

• Both gambling operators and social gaming developers can use intermittent/unpredictable rewards to get repeat custom.

• Some research (e.g., Lapuz & Griffiths, 2010) shows that players can become aroused and excited even if they are playing with virtual representations of money (e.g., fake money used in many games on social networking sites).
PSYCHOSOCIAL IMPACT OF SOCIAL GAMING

• The psychosocial impact of this new leisure activity only just begun to be investigated by those in the gaming field.

• SN sites have the potential to normalise gambling behaviour as part of the consumption patterns of a non-gambling leisure activity.

• May change social understandings of the role of gambling among young people (Griffiths & Parke, 2010).
YOUNG PEOPLE’S GAMBLING
(Ipsos MORI, 2011; n=2739 – 11-16 years)

• Around one in seven (15%) children played free or practice gambling games in the past week.

• The most popular form of practice gaming is through Facebook

• One in ten children (11%) say they have played free games on social networking website Facebook. The report noted:

• “There may be some value in tackling children’s access to free online trial games. There is a clear link between playing free trial games on the internet and gambling for real money (online and offline). However, regulators will need to target a range of games and websites to monitor this effectively, as children report playing games on a wide variety of websites”
• There is no money changing hands but raises questions about whether gambling with virtual money encourages positive attitudes towards gambling in people (e.g., young people particularly).

• Does gambling with virtual money lead to an increased prevalence of actual gambling?

• Research carried out by Forrest et al (2009) demonstrated that one of the risk factors for problem gambling among adolescents was the playing of the ‘play for free’ gambling games on the internet (games that are widespread on Facebook and other social networking sites).
• Today’s youth are more tech-savvy, have no techno-phobia, and very trusting of these new technologies (Griffiths, 2010)

• Many of these young people, their first gambling experiences may come not in a traditional offline environment but via the internet and social networking sites, mobile phone or interactive television (Griffiths & Parke, 2010)
• Griffiths (2012) argued that introduction of in-game virtual goods and accessories (that people willingly pay real money for) was a “psychological masterstroke”

• In this sense, it becomes more akin to gambling, as social gamers know that they are spending money as they play with little or no financial return.

• They are buying entertainment and the intrinsic play of the game itself is highly psychologically rewarding.
• Like slots players, SN gamers love the playing of the game itself. Money is the price of entry they’re are willing to pay.

• Unlike those involved in social gaming, gamblers do at least have an outside chance of getting some of the money they have staked back.

• Therefore, allowing social gamers the chance to actually get their money back (or gain more than they have staked) is why companies currently operating social games want to get into the pure gambling market.
Nicole Lazzaro claims there are four elemental keys that determine game success:

- **Hard fun** (i.e., overcoming difficult obstacles to progress in the game in pursuit of winning)
- **Easy fun** (i.e., enjoying the game even if they don’t win)
- **Altered states** (i.e., playing because it makes players feel good psychologically and changes their mood for the better)
- **The people factor** (i.e., socially interacting with other players).

Lazarro says the most successful games “will engage players’ curiosity, allow players to socialize with friends, challenge players to overcome obstacles to achieve goals and somehow relate to people’s lives in a meaningful way”. 
“The first and most pressing concern is that related to the legal and regulatory framework...There is an issue for those Facebook members that do not sign up with the correct details and perhaps claim an erroneous age...Online bingo rooms offer chat forums alongside the bingo room in order to cater for the inherently social element of the game. Facebook offers the same functionality, together with the world’s largest online community...Other products that are well suited to the Facebook platform are casino games such as blackjack and slots, as these games are quite fast to play and could represent a ‘break’ from the normal Facebook activities, without leaving the website.

Michael Castillo, Online gaming consultant (i-Gaming Business Affiliate magazine, October 2012)
WHAT IS SOCIAL GAMING? (REVISITED)

- Aideen Shortt (2012) claims the key tenets of social gaming are:
  1. Use of a central wallet
  2. Incorporation of virtual goods
  3. Competitive/viral elements (e.g. levels, gifts, leader boards, badges)
  4. Disproportionate ratio between free and paid play.

- There are three potential target audiences – the typical social gamer, the typical gambler, and the new category of social gambler (i.e., somebody for whom the freemium model is not compelling, but doesn’t hold accounts with gambling or casino operators.

- PKR announced that real money poker players will be able to purchase ‘virtual drinks’ as part of their immersive game play.
CONCLUSIONS

• Facebook is changing the way people (and possibly) gamblers are playing games

• Empirically, we know almost nothing about the psychosocial impact of gambling via social networking sites

• Research suggests the playing of free games among adolescents is one of the risk factors for both the uptake of real gambling and problem gambling
Behavioral tracking technologies are changing the way that we view problem gambling behavior.

Technology may help identify/define problem gambling in terms of actual gambling behavior rather than consequences of it.
Whatever is done, we can always be sure that the gaming industry will be two steps ahead of both researchers and legislators!"If Facebook is already replacing e-mail, then we should get started on a replacement for Facebook."