Scratching that Addiction Itch

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CS 846
Overview

- What is Digital Addiction?
- Digital Addiction from an RE perspective
- How can we tackle this problem?
- Creating Labels
- Gamification
- Conclusion
- Ethics Questions
WHAT IS DIGITAL ADDICTION
What is Digital Addiction?

- Addiction to video games, the Internet, social media, and to some extent pornography.

- Behaviorally the same as any other addiction. For e.g.
  - Feeling agitated when you can’t use Facebook.
  - Suffer mood swings when you can’t look at your phone/laptop.

- In terms of “tradition addictions”, most like Gambling Addiction.
The Reality

- 6% of the world’s population has Internet Addiction.
- 2.1% of people aged between 6 and 19 are addicted to the Internet in South Korea.
- 24 Million people aged between 6 and 29 are addicted to the Internet in China.
Current State of DA within RE

- Software Engineering has not taken responsibility for Digital Addiction.

- Why?
  - SE is seen as just a medium in which its requirements, features, values and design are not studied as primary causes of Digital Addiction.
Change

There needs to be a change

- Software Engineering has to take responsibility.
- Why should it?
  - Digital Addiction strongly relates to the requirements of the user.
Definition

- Digital Addiction is the excessive use of certain software-mediated operations to reach certain requirements. This includes the case when the use itself is compulsive or impulsive and also the case when the user cannot switch to other available alternatives to reach the same requirements without a good reason.
Problems

1. The user might have an explicit goal which raises their own perceived value.

2. How do we make the stakeholders articulate these values?
Where do we start?

- Social networking sites provide a wide range of features.
- Honeycomb framework defines social media on the peculiarity of their activities.
- Honeycomb has 7 functional blocks: identity, conversations, sharing, presence, relationships, reputation and groups.
An Approach

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HOW CAN WE TACKLE THIS PROBLEM
How Can we tackle this problem

- The previous section showed us how we can study digital addiction.
- But the need for cure is now!
What makes software addictive?

- Achievement
- Exploration
- Socializing
- Killing
DIGITAL ADDICTION LABELS
What are labels?
Why do we need Labels?

- Tobacco and Alcohol companies are required by law to have a label.

- Even though DA causes:
  - Reduced real life involvement
  - Lower GPA
  - No legal requirement to create a label.
What do we put in the labels?

- Time already spent on the software.
- The number of times user checked/visited software.
- Effects on physiological and mental health.
- Suggestion/advice on potentially interesting real life activities based on your usage, e.g. going to a social event which matches your detected online interests.
How do we present this data

- Time based progress statue
- Dynamic colouring of interfaces to reflect your degree of usage
- Pop-up notifications
## Awareness

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software needs to inspire my trust before I accept labelling.</td>
<td>31%</td>
<td>54%</td>
<td>13%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Labelling may lead to less natural use of software and make me lose closeness with it (no matter how useful labelling is).</td>
<td>4%</td>
<td>26%</td>
<td>44%</td>
<td>22%</td>
<td>3%</td>
</tr>
<tr>
<td>Software can only have approximation and estimation about my usage, so it should always make labels less confirmatory.</td>
<td>4%</td>
<td>50%</td>
<td>35%</td>
<td>8%</td>
<td>3%</td>
</tr>
<tr>
<td>I should be able to know how the label was generated and why; this will increase my acceptance of it.</td>
<td>25%</td>
<td>58%</td>
<td>8%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>I need to be able know how my usage data and reactions to labels are used even if this is to enhance the labelling service.</td>
<td>14%</td>
<td>54%</td>
<td>22%</td>
<td>8%</td>
<td>1%</td>
</tr>
<tr>
<td>I feel software developers/industries are often unaware of, or uninterested in, the addictive nature of their software and its consequences</td>
<td>24%</td>
<td>46%</td>
<td>11%</td>
<td>11%</td>
<td>8%</td>
</tr>
</tbody>
</table>
Paradoxes

- Control vs Autonomy
- Appreciation vs Annoyance
- Being Care vs Privacy
- Individual vs Collective
GAMIFICATION
What is gamification?

- Gamification is defined as the use of game design elements in nongame contexts
- An example would be the star bucks app.
The Starbucks APP

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How does Gamification work

- Gamification can make a lot of things fun
- RE needs to identify what makes a particular game fun.
- Then intervention developers can put those ingredients into their digital technologies.
7 core ingredients of Gamification

- Goal Setting
- Capacity to overcome challenges
- Providing feedback on performance
- Reinforcement
- Compare progress
- Social connectivity
- Fun and playful
Tactics used to make gamification addictive

- Providing clear goals
- Offering a challenge:
- Using levels (incremental challenges)
- Allocating points
- Showing progress
- Providing feedback:
- Giving rewards
- Providing badges for achievements
- Showing the game leaders
- Giving a story or theme
The Dark Side of Gamification

- Last 2 slides are the reason why gamification can be dangerous.
- We have to be careful with how we ‘gamify’ software or else the user will get addicted.
Gamification: The positive side

- Can help people suffering from DA recover.
- Can be done by rewarding real life social interactions over online interactions.
- Rewarding positive activities like playing games, or getting involved with other people in real life.
CONCLUSIONS AND QUESTIONS
Conclusion

- Digital Addiction is a real threat.
- Software engineering does not want anything to do with DA.
- To solve DA, we need to look at RE.
- Creating Digital Labels
- Gamification
Ethical Questions

- Would you work for a company knowing that they create addictive software? Why? Why not?

- Do you think Software Engineering is responsible for DA? If not, why?
THANK YOU