



# Report

## Health App for Internet Gaming Disorder (IGD): Awareness, Identification and Recovery Guidance.

DMK  
Final Project Report  
2016-2017

Course:

### MSc User Experience Design

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**Module:** Digital Media Project, CI7800

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**Type of project:** Body of Creative Work

Artefact folder:

<https://kingston.box.com/s/koo5ieg0oiqgnonp6cy7clswnmjgupqg>

Website:

[gairapp.com](http://gairapp.com)

Prototype:

<https://xd.adobe.com/view/86bd08a4-fa52-4757-8eca-a1d-4c81b4c14/>

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## Abstract

The Internet gaming addiction is real. Internet Gaming Disorder (IGD) is identified in Section III in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) of the American Psychiatric Association. Even though the “disordered” gamers constitute only 4-11% of all gamers, considering that 65% of American households have a person who plays regularly, this is a very high number.

This study explores the ways how mobile applications can help gamers recover from addiction and also improve the understanding of the problem. As part of this study the “GAIR” mobile web application was developed, which allows identification of the IGD (“Internet Gaming Disorder”). The Design Thinking Method: Exploration was used in the app development. The app was developed from scratch to being ready to be submitted for Apple Store review.

## Acknowledgements

I would like to express my deep gratitude to Dr Colbert, my research supervisor, for his patient guidance, useful advice and critiques of this research work.

The author wishes to acknowledge Dr Halley Pontes for providing his valuable suggestions and discussions.

I am particularly grateful for the assistance given by Dmitry Gorbash in development of the final product. Also for providing constructive recommendations and techni-

cal expertise on this project.

I would like to offer my special thanks to Andrey Simonov for his help, enthusiastic encouragement and support.

I wish to acknowledge the valuable advice provided by Vladimir Luzhbin.

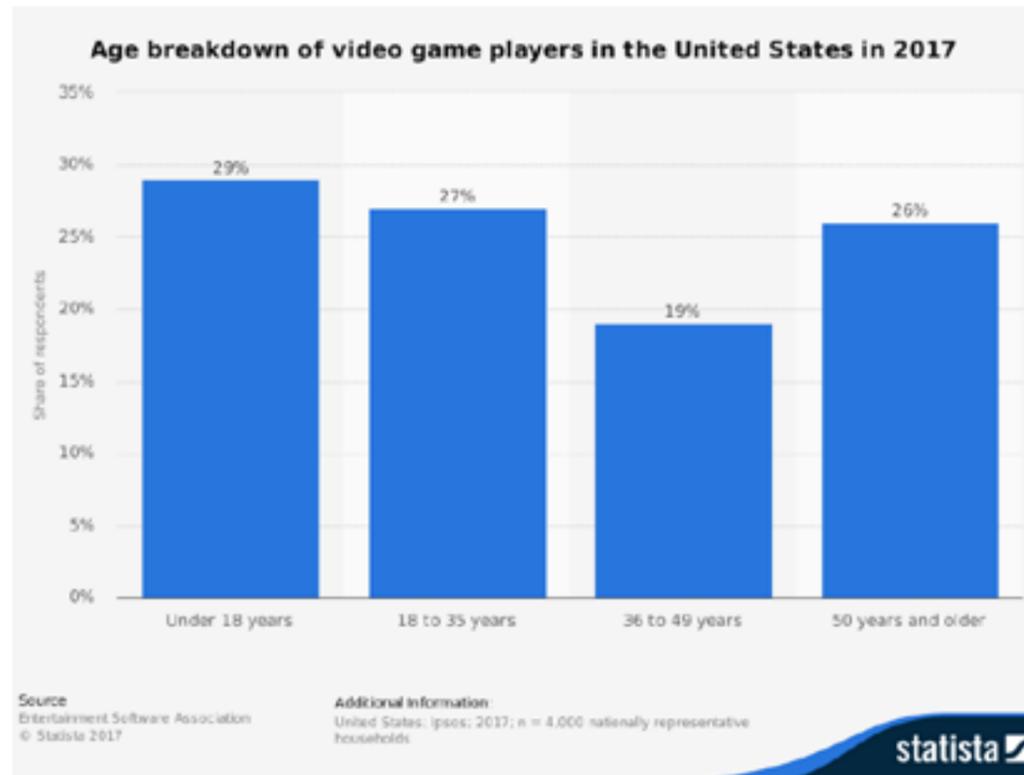
My grateful thanks are also extended to all gamers who participated in this project.

# + Introduction and background

## Usage of computer games

Internet games are currently one of the most popular leisure activities and hobbies worldwide. Global games audience estimated between 2.2 and 2.6 billion people

spreading out from 6 to 64 year olds. There are an average of 1.7 gamers in each game-playing US household. (ESA report 2017)



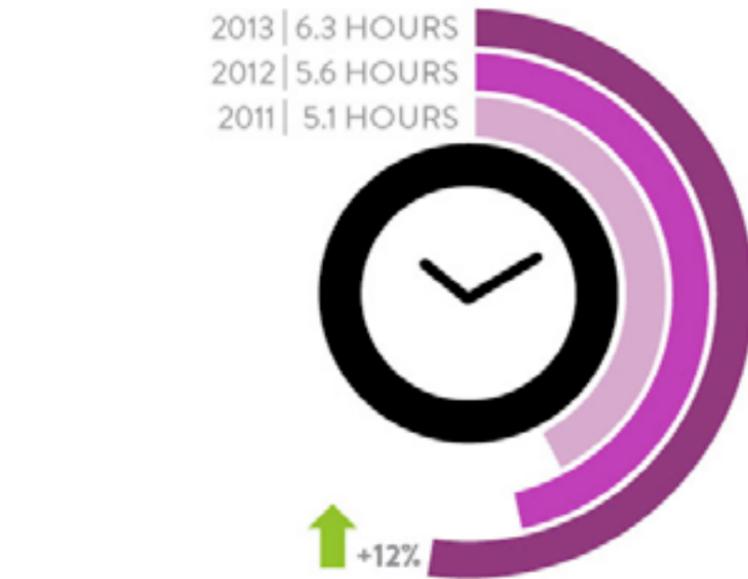
## Computer games disorder

Along with this growth in population, there is increasing concern over gaming reaching very high hours per week. According to ESA (Entertainment Software Association) 65% of US households are home to at least one person who plays 3 or more hours of video games a week. Recent reports in Video Game Trends and Statistics have heightened an average 6.5 hours per week spent playing.

Some individuals may use games excessively but non-problematically and another might experience significant impairment in their daily life as a consequence of their excessive gaming.

So far, reports of excessive gaming, denominated as "computer/video game addiction", have been discussed in the popular press as well as in recent scientific research. The studies have reported the prevalence of disordered gamers is 4-11% (Lemmens et al., 2015; Grüsser et al., 2007) Therefore, over the last decade, there has been an increasing interest in researching the circumstance.

### CLAIMED WEEKLY HOURS SPENT GAMING ON ANY PLATFORM: U.S. GAMERS 13+



Read as: U.S. gamers 13+ spent 6.3 hours a week on any gaming platform in 2013.  
Source: Nielsen 360° Gaming Report



# IGD Research

+ “...The fundamental issue in this area is whether such a disorder exists or does not exist.”

Aarseth et al., 2016

More than 300 studies exist about game addiction. In these papers the disorder is also called gaming or internet use disorder, gaming or internet addiction, gaming or internet dependence, pathological or problematic gaming, etc. (Petry, Nancy M. 2013) In 2013, the American Psychiatric Association proposed criteria for game addiction and identified Internet Gaming Disorder in Section III as a condition warranting more clinical research and experience before it might be considered for inclusion in the latest edition of the International Classification of

Diseases as a formal disorder. By listing Internet Gaming Disorder in DSM'5 Section III, APA hopes to encourage research to determine whether the condition should be added to the manual as a disorder. In response to that Griffiths and Park argued that there is no minimum number of cases needed to be identified for a disorder to be classed as such and there is ample empirical evidence that has been published from a clinical perspective suggesting IGD exists. (Park et al., 2016; Sakuma et al., 2017; Yao et al., 2017; Young, 2013).

**IGD is a “Persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress.**

American Psychiatric Association

Researchers have not treated game addiction without a dissentient voice.

Some theorists focus on potentially addictive nature of games (Griffins), others suggest that excessive gaming is a manifestation of a dysfunctional coping mechanism (Kuss 2017).

Surveys such as “Ariadne – Understanding MMORPG Addiction” conducted by Nicholas Yee, (2002) thoroughly explores the mechanisms used by MMORPGs (Massive Multiplayer Online Role Playing Games) to make them more addictive and make players stay in the game. Other researches focus our attention on excessive gaming as a symptom of psychological disorder (Kuss, 2017; Ferguson, 2011) and discussed it in relation to the core components of addiction (Grüsser, 2007). Each and every paper on the topic agrees that the subject of Internet Game Addiction needs more research and studies.

Another popular topic for discussion in the literature is identification of IGD mechanism.

Several attempts have been made to standardized assessment tools for IGD. One of the most prominent

works in the field of standardization of IGD tests is the Development of the IGD-20 Test by Dr. Pontes of Nottingham Trent University. The IGD-20 Test (Pontes et al., 2014) was the first standardized psychometric tool to assess Internet Gaming Disorder (IGD) according to the nine IGD criteria. The IGD-20 Test has a total of 20 items and conceptualizes IGD according to the six first-order latent domains well-established in behavioral addictions: ‘Salience’, ‘Mood Modification’, ‘Tolerance’, and ‘Withdrawal Symptoms’, ‘Conflict’, and ‘Relapse’.

Detailed examination of that domain showed Nicholas Yee (2002). The study offers important insights into what the addicted gamers feel, what is important for them and what are their struggles. The statistics of gamers played the game for 10 hours continuously and who consider themselves addicted to the game is eye opening. A great deal of qualitative data and gamer testimonials help understand how some gamers feel trapped in their circumstances and have no control over their lives. The findings help understand that games are a way for many young men and women to overcome social awkwardness and to get a feeling of being competent.

## Inspiration

There are a number of sources of inspiration for this project. The first reason for choosing this topic is personal interest. Witnessing a case of problematic gaming in my family was the provenance of my research and the main motivation. I became interested in raising awareness about negative side of gaming after witnessing how difficult it is for an addicted gamer to recognise that they have a problem and to try and overcome it.

Secondly, I became familiar with the lecture titled “How to create an addictive game”. This talk has prompted a thought that when behaviour becomes addictive one should not necessarily blame addictive personality, but also recognise the contribution of powerful psychological techniques used in games.

Finally, even though Game Addiction is increasingly recognised as a serious, worldwide public health concern, it's not officially recognised as a formal disorder. This means all the people who have problems with ga-

ming don't have enough public information and cannot get proper help and insurance coverage.

In this context reasonable step to take is to raise a public awareness campaign. Public awareness campaign is a large complicated movement. This work does not pursue the aim to create one in full, but to focus on one component: to build a fully interactive online platform to engage key audiences. This component could be a mobile application that raises awareness, helps identify the problem and guides through recovery regardless if one has an addiction or not. The target audience which is prone to social anxiety and introversion is more likely to seek help online and hence would benefit from the personalized web app format. In addition to this, mobile web usage overtakes desktop and chances are that this will continue to grow over time. This idea is also supported by the marketplace trends of 2017, which proclaim: “Optimize for mobile - the new universal standard”.

# Aims and Objectives

The primary aim of this project is to develop a Health App for IGD. The research intention is to examine how the Health Apps can help the affected people and create a tool for individuals who are struggling with excessive video gaming. Another purpose is to explore IGD and raise awareness about it.

## Objectives/deliverables

- IGD research
- User research
- Prototype
- Mobile Web App
- Launch in AppStore

# + Project plan

To achieve the outlined objectives and the overall aim of this study the “DT Method: Exploration” was chosen. This methodology defines the following project phases: Inspiration, Ideation and Implementation. To deliver the project the design team followed the Scrum project management framework.

The project consisted of the following phases and steps:

## Inspiration phase

|                 |                     |
|-----------------|---------------------|
| • <b>Step 1</b> | Interviews          |
| • <b>Step 2</b> | Competitor analysis |
| • <b>Step 3</b> | IGD research        |

## Ideation phase

|                  |                      |
|------------------|----------------------|
| • <b>Step 4</b>  | Lightweight Personas |
| • <b>Step 5</b>  | User Flow Map        |
| • <b>Step 6</b>  | Content              |
| • <b>Step 7</b>  | Wireframes           |
| • <b>Step 8</b>  | Mockup               |
| • <b>Step 9</b>  | Prototype            |
| • <b>Step 10</b> | Testing              |
| • <b>Step 11</b> | Redesign             |

## Implementation phase

|                  |                        |
|------------------|------------------------|
| • <b>Step 11</b> | Build Application      |
| • <b>Step 12</b> | Front-End Style Guides |
| • <b>Step 13</b> | Submission             |

# Main body

# 01. Interviews

## + Project Inspiration Phase

Under the “DT Method: Exploration” method the first phase of the design process is Inspiration. This step requires approaching people with empathy, understanding what users need or might need, what makes the life easier and more enjoyable for them and what is technologically feasible.

Prior to this study the author observed two highly engaged gamers and their behavior in the context of their lives for an extended period of time. This gave the author the “in the field” experience which enabled her to have a deep empathetic connection with the target audience of the proposed application. In addition, the following research methods were used as part of the study: Interviews, Competitor Analysis, IGD Research and User Research.

Five adult participants were engaged in informal, conversational interviews, one by one. Participants' age was ranging from 32 to 39. All the participants had substantial experience with the internet and online video gaming.

| N  | Gender | Occupation                         | Age | Exposure to games | Games played most often |
|----|--------|------------------------------------|-----|-------------------|-------------------------|
| P1 | Female | Chartered Counselling Psychologist | 35  | Not a gamer       | -                       |
| P2 | Male   | Programmer                         | 39  | Gamer             | MMORPG                  |
| P3 | Male   | QA                                 | 33  | Gamer             | MMORPG, RTS, MOBA       |
| P4 | Female | Educational and Child Psychologist | 34  | Former Gamer      | RPG                     |
| P5 | Male   | App Developer                      | 32  | Former Gamer      | RTS, RPG                |

Figure 1. Interviews participants table

The interviewee recruitment process was carried out through social media or email. The interviews were conducted via Skype and in person. Participants were engaged in general conversation about their gaming experience and were asked two main questions: “Do you think gaming addiction exists? Do you think a health app about game addiction would be useful?” Main features of the app were outlined prior the question. Respondents were given freedom to answer within the boundaries of the topic of interest.

Majority of the participants agreed about existence of game addiction. Professional psychologist compared the recovery process of a game addicted individual and a substance dependant person concluding that they have very similar stages and difficulties. All participants were genuinely interested in the IGD application idea, 4 out of 5 said they would definitely use it.

Also participants mentioned similar apps on the market for Smartphone Addiction. This finding naturally leads us to the next step in this paper - competitor analysis.

## 02. Competitor analysis

Competitor analysis was conducted to assess existing or parallel work by others and to see the strengths and weaknesses of current online representation of IGD-related content and applications.

### Defining the industry

The competitor analysis was conducted within the "Mobile Applications in Healthcare" industry. More specifically, the applications which help people overcome addiction were considered. Mobile apps usually provide a more personalized approach to healthcare advice and information. Not only these apps can be helpful for the patients, but also for the relatives by giving an easy and flexible way to communicate with doctors and medical suppliers.

### Who the competitors are

Evaluating the competition involves looking at designs of products that are both in direct and indirect competition. Currently there are no apps for gaming addiction that directly compete or solve the same problem and have the same core functions. Indirect competitors have a different user base: they can be used by people with all sorts of substance addiction and gambling dependency. Moreover these apps have a different service offering, and some aspects of these products overlap.

Below is the representation of online resources on IGD:

| Name           | Address          | About website   |
|----------------|------------------|---|
| OLGA anonymous | olganon.org      | A platform to share experience, get support and guidance for online gaming addicts.   |
| Game widow     | gamerwidow.com   | A place for the gamer widow(er)s and their gamers to communicate and connect with each other. The site has up to date news, stories shared by widow(er)s, a chatroom, and other useful information. |
| Tech Addiction | techaddiction.ca | Expanded scholar library about internet and game addiction among children and adults.   |
| BreakFree      | App store        | Internet usage monitor.   |

Figure 2. Indirect competitors table

There is an increasing number of users turning to Mobile Health Applications for help. The patients and their relatives now have a 24/7 access to healthcare at their fingertips. The popularity of health apps has doubled between 2013 - 2015 according to HRI. This sector is seeing an exponential growth in a number of customers.

One of the most exciting features of mobile apps is the ability to get personalized advice and care from experts and professionals.

There are several Healthcare Mobile App trends evident in the market according to Stewart Gandolf:

- Smarter content wins patients

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- Personalization

---

- Mobile optimization

---

- Location-based marketing

---

- Patients as informed consumer/buyers

---

- Patient's time is just as valuable as a doctor's time

### Determine the customers

The prospective customers for the IGD app are: anyone who plays at least 1 hour at week, their parents, relatives, health and education professionals.

### Results

There is no direct competition for the mobile app developed as part of this project. However, the online resources designed to help people with gaming addiction have the same goal and similar content. The downsides of the competing websites are: the design is mostly not engaging, users cannot test themselves, the focus is on content and not the user experience. The upsides are that those websites have been in existence for a significant amount of time, and already have quite a community built up. Furthermore, many of these sites are very easy to find, as they appear at the top of Google search results.

## 03. IGD Research

The analysis was fully described in the "Introduction and Background" section of this paper, in the "IGD research" chapter. This research helped understand the gamers' behaviors, needs, and motivations more deeply. Now, to create a solid and practical image of the project's key audience groups the next logical step is persona creation. The Ideation Phase will explore the personas in more detail.

# 04. Lightweight Personas

Major user groups of the application are:

## + Project Ideation Phase

Ideation is the core of any development process where an idea is better defined, developed and tested. It's a procedure where issues are converted into solutions. UX methods like the creation of personas, user flow, content strategy, wireframes, prototype and user testing were used in this work.



Gamer



Parent



Game Widow

|                                   |  |   |   |
|-----------------------------------|--|---|---|
| <b>Needs and expectations</b>     | <ul style="list-style-type: none"> <li>Identify addiction</li> <li>Manage time</li> <li>Tips on/Help with fighting the addiction</li> <li>Find specialists</li> <li>Find support</li> <li>See alternatives</li> </ul>      | <ul style="list-style-type: none"> <li>Find solutions, answers, methods, potential future problems.</li> <li>Help child get rid of addiction</li> </ul>                                   | <ul style="list-style-type: none"> <li>Find solutions, answers, methods.</li> <li>Support</li> <li>More information about the problem</li> <li>Connect with people with similar problems</li> </ul> |
| <b>Features and functionality</b> | <ul style="list-style-type: none"> <li>Addiction Test</li> <li>In game time monitoring</li> <li>Community support</li> <li>Positive stories</li> <li>Gamified experience</li> <li>Fully personalized experience</li> </ul> | <ul style="list-style-type: none"> <li>Addiction Test</li> <li>Specialists map</li> <li>Timetable info</li> <li>Game monitoring tools</li> <li>Experts and professional advice</li> </ul> | <ul style="list-style-type: none"> <li>Support group near me location map</li> <li>Methods</li> <li>Experts and professional advice</li> </ul>  |
| <b>Description of the user</b>    | <ul style="list-style-type: none"> <li>16-65 years</li> <li>M/F</li> <li>Mobile/desktop user on a regular basis</li> <li>Primarily mobile access the web for information</li> </ul>  | <ul style="list-style-type: none"> <li>30-65 years</li> <li>M/F</li> <li>Mobile/desktop user on a regular basis</li> <li>Primarily mobile access the web for information</li> </ul>       | <ul style="list-style-type: none"> <li>18-65 years</li> <li>M/F</li> <li>Mobile/desktop user on a regular basis</li> <li>Primarily mobile access the web for information</li> </ul>                 |

Figure 3. User groups table

# 05. User Flow Map

User flows are a great and convenient way to experience a process or product without building it. It's equally useful for addressing user needs while maintaining the project business objectives.

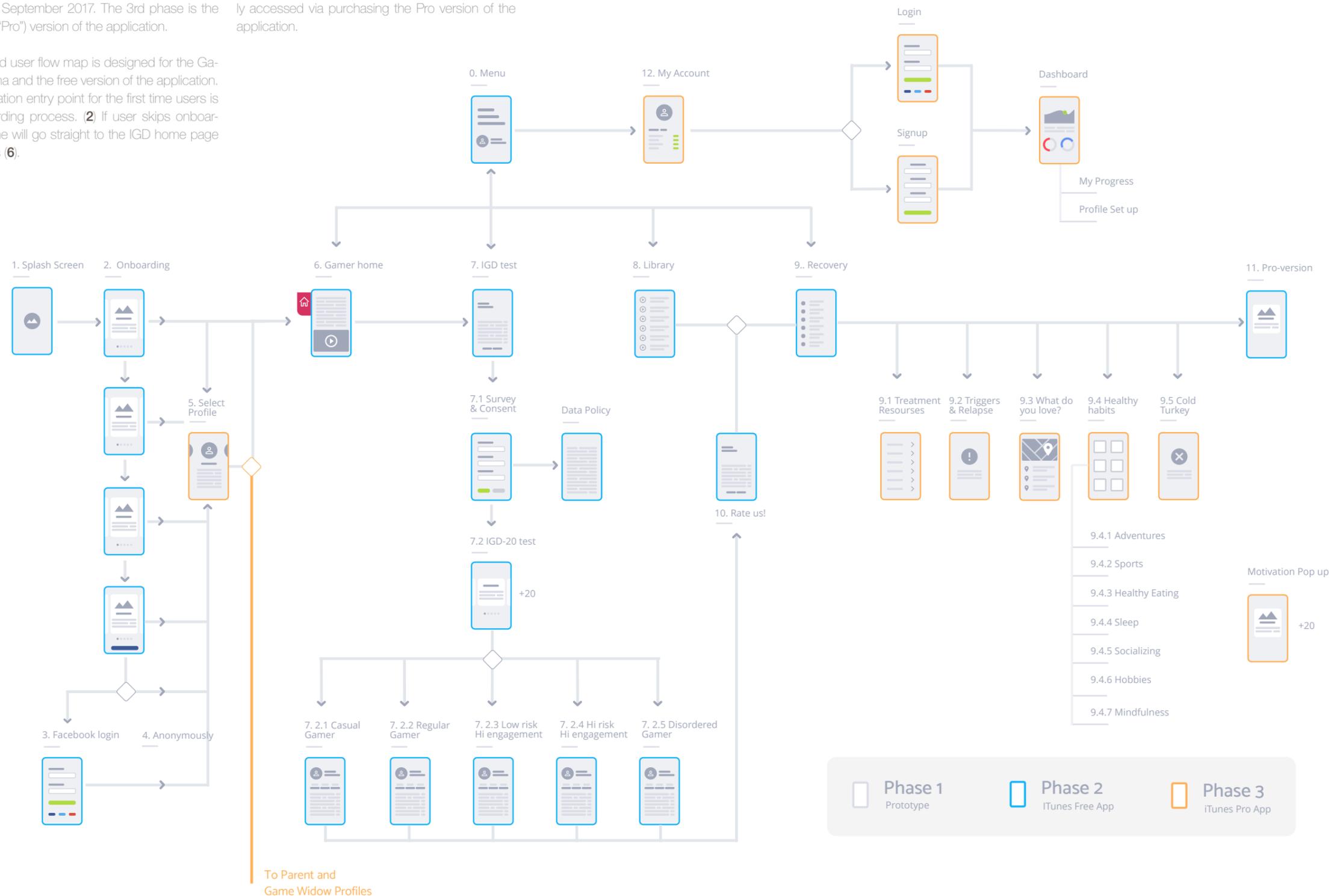
The user flow shown below reflects the 3 main phases of this project. The first phase is the app prototype, the 2nd phase is delivery of the introductory free version of the app, which is going to be launched by the end of September 2017. The 3rd phase is the extended ("Pro") version of the application.

The detailed user flow map is designed for the Gamer persona and the free version of the application. The application entry point for the first time users is the onboarding process. (2) If user skips onboarding, he/she will go straight to the IGD home page for Gamers (6).

From the Home page the Gamer can access the IGD test (7). The testing process consists of the screening survey (7.1) and a 20-screen questionnaire (7.2). After finishing the test and seeing the result (7.2.1 - 7.2.5), user will be offered to rate the application (10). After ignoring or completing the feedback form, user can open the IGD library (8) or the Recovery Guidance (9). The latter can be fully accessed via purchasing the Pro version of the application.

User can access the Main Menu (0) from any screen. From the Main Menu the user can access his/her personal profile, status bar and the meeting reminder widget.

The next step in the process of the building this application is content creation.



# 06. Content

This is a content based app. To create the content and make it 'come to the fore' the IGD/user research, competitor analysis and interviews steps were completed.

It's a good practice to synthesise ideas into the project features table. The table below was structured based on the general goals of awareness campaigns and on common needs of affected gamers. The major part of the free version of the application is the IGD test. The questions and the results of the tests were taken from the work of Dr Pontes.

| Awareness campaign goals    | Problem - what users need  | Solution - app features   |
|-----------------------------|--|---|
| Educate                     | Information about IGD and solutions for recovery. People should know what to do. | IGD description, criteria, gamer profiles<br>IGD library with articles, videos and books<br>Recovery guidance   |
| Motivate                    | "People know what they should do, but don't do it"                               | Healthy habits section with activities and meetups<br>User progress dashboard<br>Daily inspiration pop up   |
| Adapt a solution that works | Take a solution that worked somewhere else and apply it to this problem.         | Cold turkey<br>Reward<br>Sobriety badge<br>Timetable for gaming<br>Triggers and relapse<br>Find Support/community/Connect with others to understand where you are<br>Reviews from recovered |
| Change attitudes            | Present information or incentives to change the way people feel about situation  | IGD test<br>Location based Professionals Map<br>Location based Meetup Map   |

Figure 5. Application features table

# 07. Wireframes

A logical place to start the actual design process is with a rough wireframe. The initial draft was created as a paper sketch. Eventually it was thrown away as digital wireframes were composed. They loosely shape the product, giving a reliable idea of how the core screens will look and interact. These wireframes formed the basis for the user journey.

The key screens in the digital wireframes are:

- Main menu
- IGD home page
- General criteria for IGD
- Test page (based on Dr. Pontes' IGD-20 test)
- Test results page
- Recovery guidance
- Activities
- Motivational popup
- Location based hobby/meetup search screen

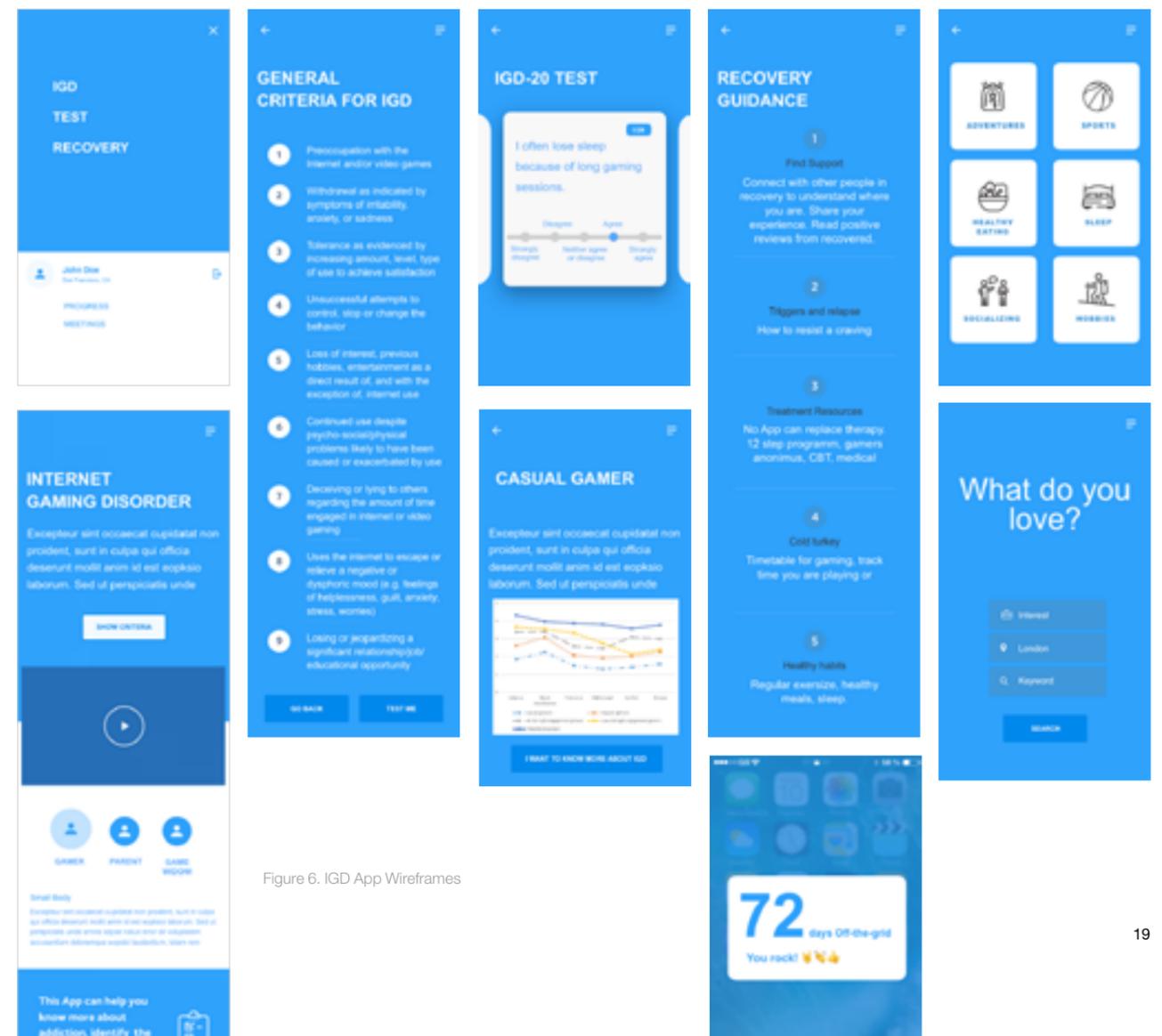


Figure 6. IGD App Wireframes

# 08. Mockup

Next comes the mockup creation. Mockup is a more visual way to represent the content and structure of a website or an application. Unlike wireframes, the mockups are very close to how the prototype and future application will look. They have colourful imagery, icons and typography. However, the mockups are static by definition. Creation of mockups is a prerequisite for a high-fidelity prototype.

Below is the first version of the IGD application mockup. It has inherited all the main UI elements from the sketch. The test page is represented in two different layouts. One is swipeable question cards, and the second is a single-screen question list. After receiving the initial feedback on the mockup it was decided to carry on with card based questionnaire. The additional feedback was to reduce 'textiness' of the content.

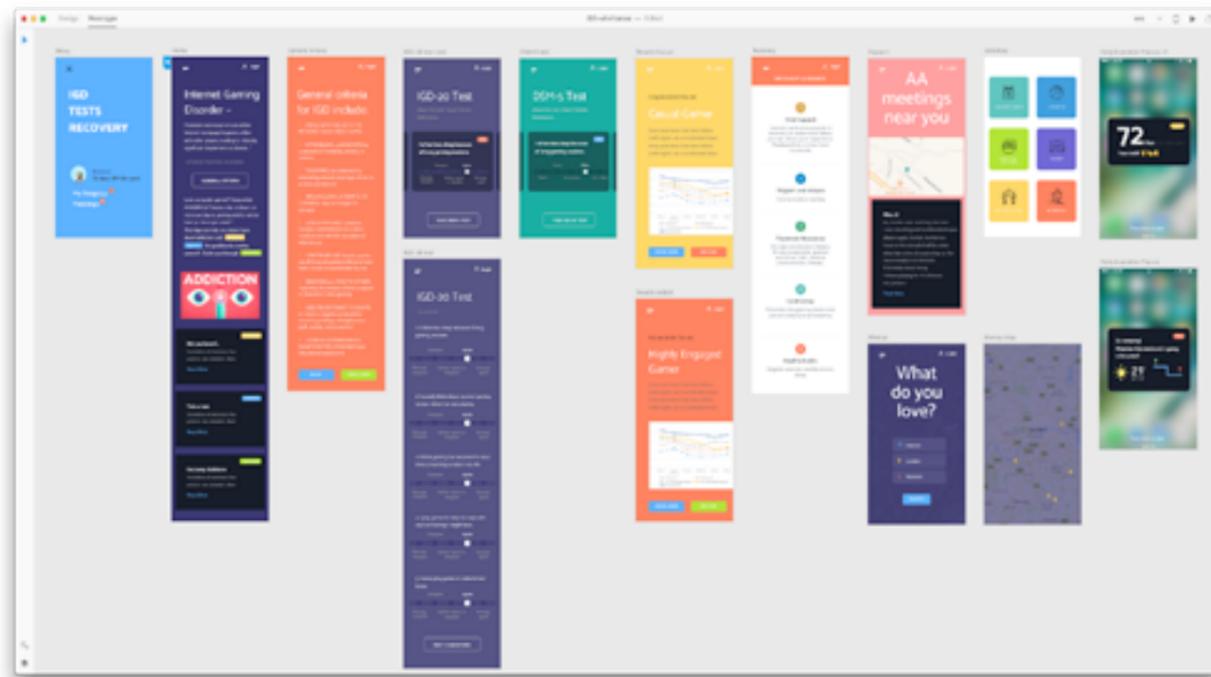


Figure 7. IGD App Mockups v.1

After more research into the topic was done, and all the feedback to mockups v.1 was incorporated, the Mockup version 2 was created. In this version the Home Page has less sections, which reduces

amount of scrolling and also the 'texty' feel it had. A new page was added: IGD test description page. The page shows the scientific foundations behind the identification method used in the IGD-20 test.

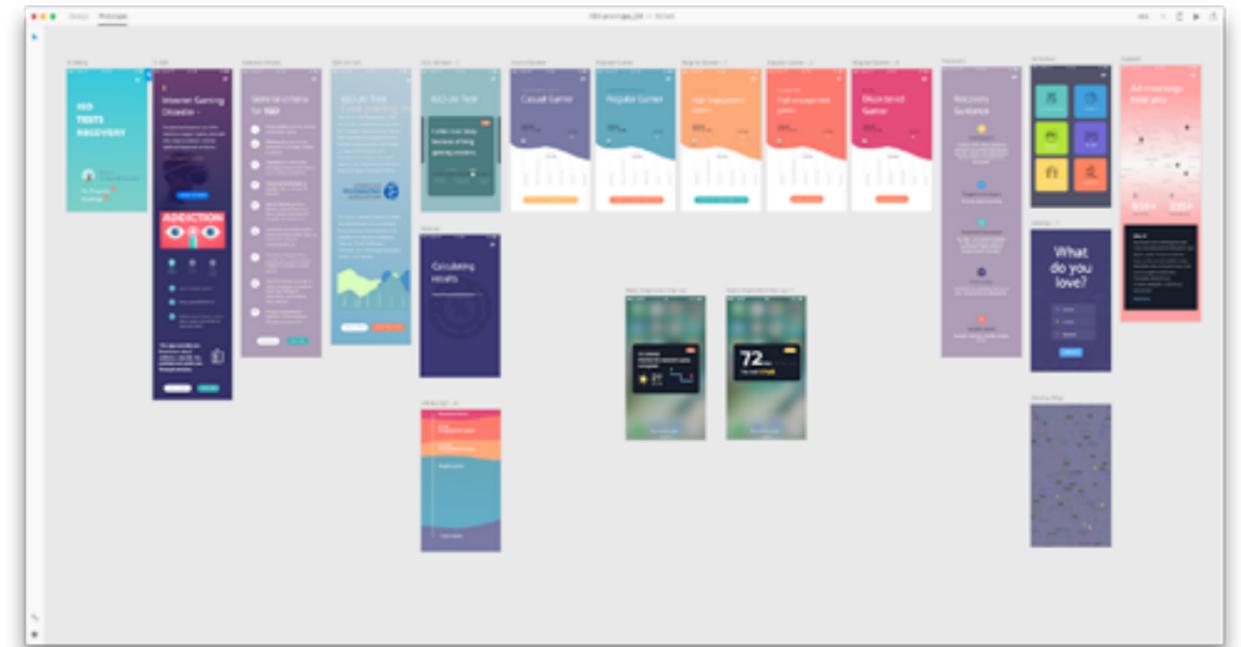
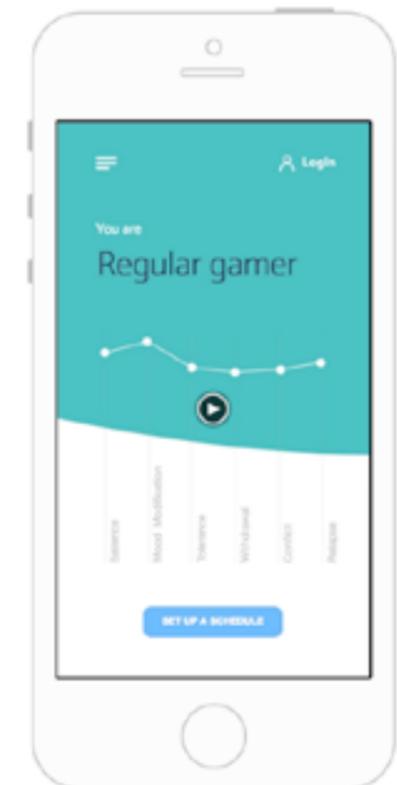


Figure 8. IGD App Mockups v.2

At this point the parallel work on the app implementation phase has started. In order to build the working IGD-20 test in the app we needed the method for score calculations used in the test. We got in touch with IGD-20 test author Dr. Halley Pontes of Trent University, who is a member of the International Association of Game Addiction Research. To present the work for the review to Dr. Pontes a short demo video of the future app was created. This video has been equally helpful for briefing the developer.

After acquiring the IGD-20 score calculator and getting positive feedback on the project from Dr. Halley Pontes, we were additionally asked for a feature data collection for his research. To collect this data the survey screens were designed and implemented.



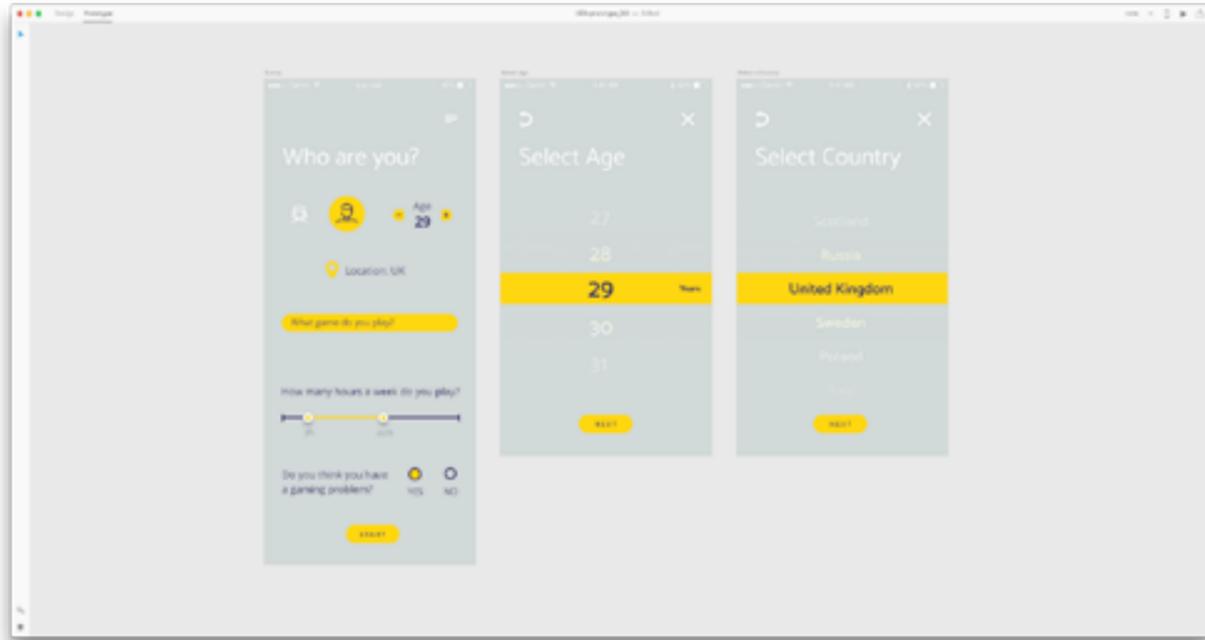


Figure 9. IGD App Survey Mockups

After discussing the App survey mockup screens with the developer and some testing, it was decided to add more gender options. Also infographic about gamer test results was redesigned to have the focus on the score number. In addition the library page was designed.

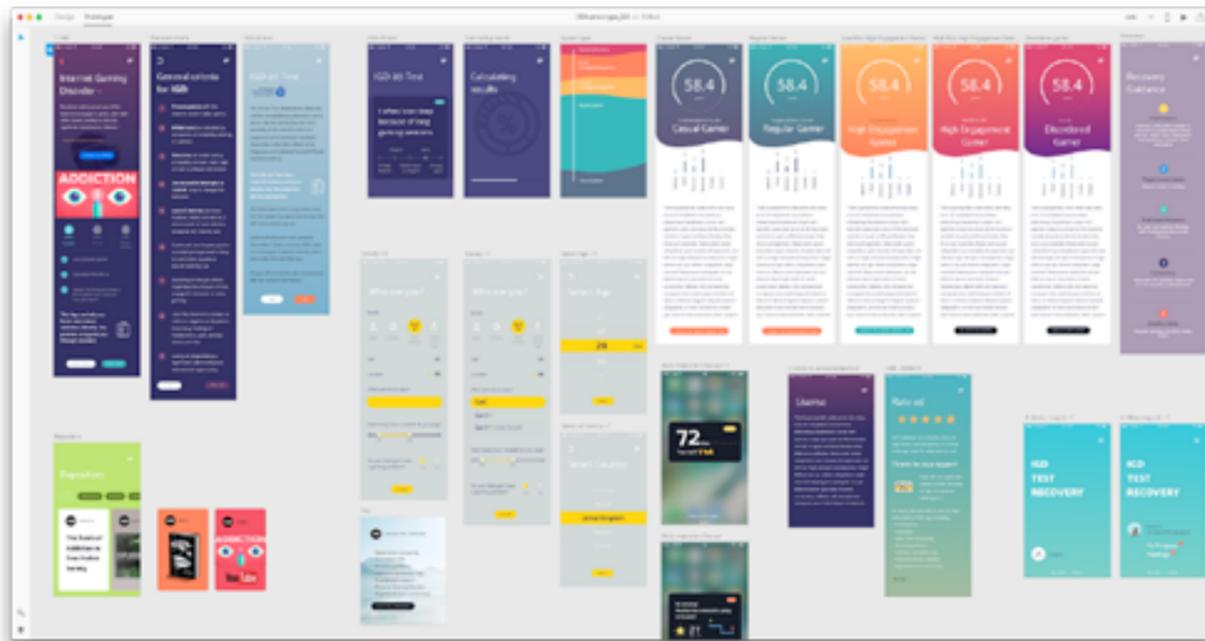


Figure 10. IGD App Mockups v.3

The next sizable addition to the project were the launch screen and the onboarding screens. The splash screen is shown while the application is loading. It shows the application name, short description and a progress bar. The splash screen is followed by 4 onboarding screens which describe the main features of the application and offer the user to continue the journey via creating an account using Facebook, or to carry on without being logged in. Informal feedback revealed negative feelings from

key audience about the App name "IGD" ("Internet Gaming Disorder"). As this name has the word "disorder" in it, some users felt as if a diagnosis was forced on them from the start. Hence the app was renamed from "IGD" to "GAIR" ("Game Addiction: Identification and Recovery"), which is less prescriptive. Other app names considered were: GameDict, GameHead, GameOut, GameFix (fixation), GameMind, AIR.

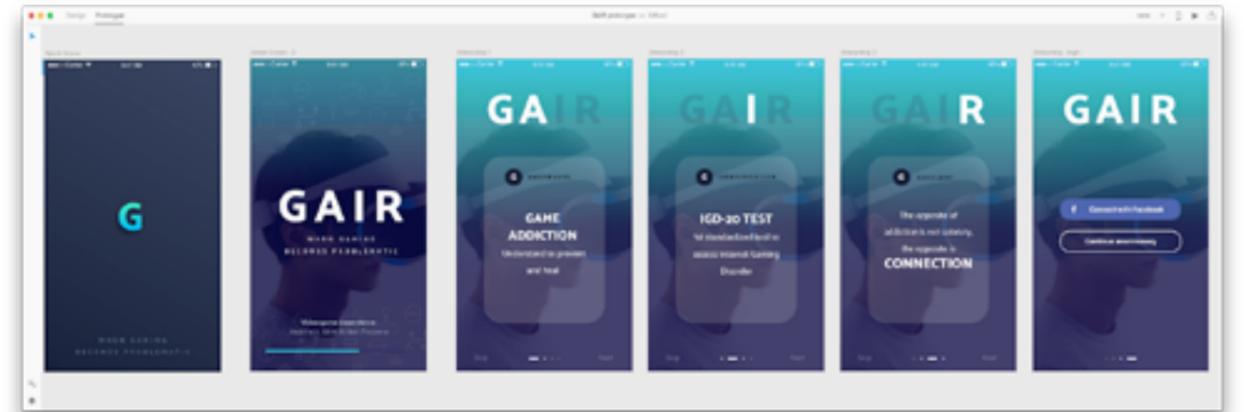


Figure 11. IGD App Splash screens and Onboarding

At this stage an Apple Connect account was created. The Apple Dev process requires app icons to be submitted. Below you can see the evolution of the GAIR app icon from the first version to the current one.

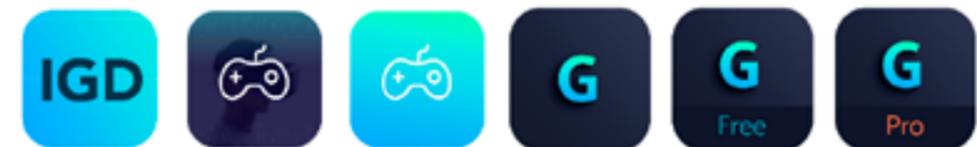


Figure 12. IGD App Icon Development

The latest and final mockup version of the App was Version 4.0. It consisted of 33 various screens:  
 Splash Screen  
 Onboarding Screens (4)  
 Menu Screens (2)

Home Page  
 Identification/Test Screens (10)  
 Gamer Profiles (5)  
 Library Screens (5)  
 Recovery Guidance





# Design Rationale

The app Design was organized around these core principles: aesthetics, consistency, direct manipulation, feedback and user control.

## § 1 - Splash screen

The screen was created to keep users engaged while the application is loading. The graphic on the splash screen (showing a gamer in a VR headset) sets the tone and the context of the application. The screen also shows the name of the application with a short description. The progress bar shows the loading progress giving the impression that the app is fast and responsive, while allowing initial content to load.

## § 2 - Onboarding

Onboarding screens (4) are meant to give the user quick understanding the purpose and capabilities of the app. It works as a carousel with navigational controls, which suggests additional content that is not currently shown. This encourages the user to continue swiping and looking at the content. User can skip this process at any time by clicking the Skip button.

## § 3 - Home

It was decided to put the first things to know about IGD here: Description, Criteria and Testing. The IGD criteria initially had a page of their own and consisted of a long text with 9 points. Later it was decided to make them more interactive. 9 photos were selected for each criterion and the text and the photos were arranged in the Cover-flow pattern.

## § 4 - Menu

The menu gained an embedded User Dashboard to make it more personalized.

## § 5 - About test

This page was created to increase the credibility of the test by acknowledging its scientific base. The logo of the American Psychiatric Association was added for the same purpose.

## § 6 - Survey

The survey page was added to collect the statistics on the gamers who took the test for further research of IGD. This section was requested by Dr. Halley Pontes.

## § 7 - Test introduction

Test introduction sets the scene for the test lying ahead. It also introduces the control elements.

## § 8 - Test questions

Initially there was a choice between two options of the layout for the screen: vertical list of the questions one by one on the same page (see Mockup version 1) and as swipeable cards, with one card for each question. After informal discussions with users the card pattern appeared to be more user-friendly.

## § 9 - Privacy

Because of the sensitivity of the subject it is very important that users can stay anonymous if they want to. This section reassures the users that they have full privacy. If user doesn't want to share his/her data, they can indicate so in the survey, and the data won't be sent out.

## § 10 - Gamer test results

The IDG test results as designed by Dr. Pontes are represented by scores on 6 addiction components. To make the test results easier to understand and shareable on social networks, it was decided to merge all the numerical components into a single two-digit score. Additionally, infographics on 5 game latent profiles was added, so that users can easily see where they are located on the scale of gaming addiction.

## § 11 - Recovery guidance

Recovery guidance was split into 5 major recovery techniques/methods, based on the IGD literature. At the moment all the elements are stubs, as a very significant amount of additional research is required to complete the sections.

## § 12 - IGD library

The free version of the app just shows a library sample. Each section has a minimal number of library items to give users a taste of what they could get with the Pro version.

# 09. Prototype

The first version of the App prototype was built using the "Proto.io" prototyping software (see Appendix, "Prototype Version 1"). The prototype had the following functionality available: IGD testing process without the result mapping, interactive menu, home page. It was a High-fidelity prototype version. The process of updating the prototype in Proto.io was inefficient and time-consuming so the prototype was replaced with an improved "Version 2" made in Adobe XD. Adobe XD allows for rapid prototyping

and quick testing.

At this stage it was decided to build an actual mobile web application and invest less time in the prototype realism. The latest version of the prototype was frozen and used in user testing.

# 10. User testing

Heuristic app evaluation was performed during the ideation phase of the project as part of user testing. All evaluation sessions were conducted in person with real time feedback. Participants were given an

iPhone 6 with the app prototype open at the splash screen. All of the participants conducted the evaluation on behalf of the Gamer user group.

| N  | Gender | Occupation                   | Age | Exposure to games | Games played most often |
|----|--------|------------------------------|-----|-------------------|-------------------------|
| P1 | Male   | Programmer                   | 39  | Gamer             | MMORPG                  |
| P2 | Male   | QA                           | 33  | Gamer             | MMORPG, RTS             |
| P3 | Female | Business Analyst / Architect | 34  | Not a Gamer       | -                       |
| P4 | Male   | UX Designer                  | 33  | Gamer             | RPG                     |

Participants were given a task to use the application as if they had just downloaded it for themselves. They were asked to give real time oral feedback on their experience with the application.

After the testing these follow-up questions were asked of the users:

- Was the application easy to navigate?
- Do you believe in the score results?
- Have you learned anything new after using the app?

## The key findings

1. The Rates Us page is confusing as it offers to support the project and to donate money at the same time. User didn't understand how it worked.
2. If a question in a test was accidentally skipped

or missed, the application didn't warn the user about this and didn't show the results at the end

3. IGD Criteria on the homepage were not intuitive to use
4. Half of the participants noted that it would be convenient for them to show their username and avatar in the top half of the menu screen

General feedback was very positive. The app was easy to navigate and understand. The users found the application to be pleasant and fun to use, even though this app is from the Health Apps category and explores a topic that is problematic and emotional for many of the users. As a result of the evaluation a new alert message screen was added into the IGD testing process. The text on the Rate Us page was rewritten with more coherent structure.

# 12. Front-End Style Guides

## + Project Implementation Phase

Implementation is the final step where the solution comes in contact with the outer world. Implementation started very early to allow for early testing. In fact, implementation was conducted simultaneously with the ideation phase.

To ensure correct usage of the app elements and modules, the Design Style Guides document was created. It consisted of the visual look and feel of the UI elements such as text, buttons and other interface components. The Style Guides were handed over to the developer with the mockups, and photos.



## 11. App Development

The development strategy was to deliver the application quickly and to support multiple platforms from the outset (iOS, Android). The app needed to meet high expectations for quality and functionality. In order to achieve this goal the developer used the latest technologies such as PWA (Progressive Web Apps) and Ionic Pro. PWA are

browser mobile web applications. These apps are not limited by the browser in any way and run with full features like the native apps do. Ionic Pro is a software development platform for delivering mobile apps. It allows realtime hot code updates and bug fixes, before and after the app is in the app stores.

**“A Progressive Web App uses modern web capabilities to deliver an app-like user experience.”**

Progressive Web Apps web site

Scrum project management framework was used for development. The project was broken down to tasks (“stories”), which were organized into Sprints. The Scrum Board with the sprint tasks was used to collaborate with

the developer, refine tasks and check the progress. To start work on the app the prerequisite was to register as an Apple Developer and to get an Apple developer membership.

# 13. App Submission

## Steps required for submitting an app:

Assemble App Store Information. This step requires the following sub-tasks to be completed:

- Create promo-screenshot
- Create app description
- Register and buy a web domain name (gairapp.com)
- Create privacy policy
- Create app icon

- Create an App Store Listing
- Create a Release Build
- Fill in the Version Information
- Review iOS Human Interface and Store Guidelines
- Review the store guidelines in App Store Review Guidelines
- Test the build
- Submit Version for Review
- Release

## Set of steps needed to be performed by the developer:

- Create a Bundle Identifier
- Create a Certificate Signing Request
- Create an App Store Production Certificate
- Create a Production Provisioning Profile

Currently the submission for review is planned for the 22.09.2017, and the launch in App Store (pending positive review outcome) is scheduled to happen by the end of September 2017.

# + Discussion

## Limitations

The main limitation of the app is that it doesn't fully cover its outlined purpose, which is Awareness, Identification and Recovery Guidance. The Identification part of the app is fully functional, however the rest of the topics are

only partially covered. To get full access to the resources user will need to acquire the Pro version which doesn't exist at the moment.

## Expectations

If this project would have to be done again, the following changes would be advisable:

- Using different prototyping tools. Ones which generate design style guides automatically should be preferred.
- Paying close attention to Apple Style Guides.
- Working more to make the app look less as a website with interactive features
- Perform usability evaluation on a larger sample of users.
- Work closer with the developer(s).

Collaboration with the developer was productive overall, even though the developer was engaged on a part-time basis.

There is a number of modifications and improvements that could be made to the design:

- Richer, more engaging text, written in a non-scientific voice and tone
- Micro interactions, animation and gamification

## Gamification

Game elements and behaviours can be advantageous in motivating individuals to overcome their disorders. By giving rich feedback, and managing challenge and reward, gamification can maintain user engagement. Recovery part of the app can benefit from gamification the most. The following features are planned to be introduced in the Pro version of the app:

- Progression status
- Score feedback
- Meaningful rewards
- Achievement system
- Motivational pop-ups that pushes to resist a craving

## Future plans

Next step is to test the app on a large sample of users. If this testing finds serious issues or much needed optimizations, they will need to be implemented. Later, a fundraising campaign can be created to support development of the Pro version of the App with following features:

- Recovery guidance
- Addiction specialists map
- Parental profile

- Game time monitoring
- Personal gaming statistics
- Languages support
- Registered users community.

Finally, to implement the Pro version of the GAIR App.

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**+ GAIR App**