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Determining factors for user engagement, for a mobile application based on IGDB's services

The Process of Designing, Building, and Deploying an Android news application for gamers powered by IGDB.com

Master's thesis in Interaction Design and Technologies

Filip Husnjak
Emil Åhsberg

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FILIP HUSNJAK
EMIL ÅSBERG
Department of Applied IT
Chalmers University of Technology

Abstract

IGDB.com is a gaming website containing game related information for over 35000
games. With their API for the database they would now like to expand their ser-
vice's reach through a mobile application. The application needs to engage IGDB's
users, called gamers, to gain high downloads and active use. To find these factors
and create an application that their users will use, by using several methods such
as; Questionnaires, a Blue Ocean Strategy method called Strategy Canvas, Proto-
typing and user testing. The findings from the questionnaire states that the most
sought after feature for a mobile application is access to the database, searching
for game information, where the News and Social features came after. The created
application became a Game news application where the user can search for games
read information and news. Concluding the thesis, we found that through the use of
these methods and the mobile platform we have managed to find interesting factors.
We believe that these factors are the cause for the higher user activity on the mobile
application than on the website.

Acknowledgements

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Introduction

Today's application market is a highly competitive place as new apps are constantly uploaded, downloaded, and most are soon forgotten. Developers struggle more than ever to attract users with this major competition that has emerged in recent years. As of 2016 the Google Play store has approximately 2.6 million[38] applications where Apple's app store has 2 million[39], there are a lot of applications and the competition is fierce. Ranking highly on app store lists is a must to be seen and to survive in this market. Now that both App Store and Play Store no longer rank applications based on number of downloads but instead by their users' retention[33]. The Play Store and App Store work differently in how they rank and categorise the applications. Both work with many factors such as retention which translates to how often an application is used. To rank highly on the lists, the application needs to be downloaded and used. Now that acquiring a lot of downloads is not enough for getting on the application stores ranked lists, developers needs to develop applications for retention, encouraging the users use them more. This is a good thing for the users as the quality of the applications will only rise to reach this demand for visibility. The challenge lies with the developers who have to find ways of creating better apps. One way of doing this is to focus on *Onboarding* techniques, making new users quickly and easily adapt to the new system. Onboarding is widely used in applications to welcome and teach new users about the software and how things work. Failing at onboarding means that the new user will not adapt to the new system and will delete it for another application[28].

IGDB is a start-up from Gothenburg, Sweden that has created an online database containing information and reviews about games. As a start-up they have been focused on implementing new features in order to attract new users. To identify which features to implement they use analytical tools to monitor their site and see how users interact with their service. Through that data they can see that users seldom visit their homepage multiple times in a short span of time, the average user only visits their page a few times a month. This is something they want to change by developing a mobile application that uses their services. The goal of the mobile application is to be used daily as a part of the user's routines and habits, and to make them use the company's services more frequently. This thesis focuses on what the IGDB mobile application should look like and what features it should contain. The goal is to motivate their users to actively use the application and thus the research question for this thesis is:

"What factors would make gamers actively engage in IGDB's services through a mobile application and how can this be achieved using Interaction Design?"

This is an interesting question to answer as there are so many applications being made that nobody will ever use because they are not thinking about attracting and keeping their users. The question is built up of two parts; finding the deciding factors and the IGDB service.

The interesting factors we want to find are what keeps users interested and engaged on a mobile device. These factors will be tested on our own designs which will be based on Google's Material Design guidelines. IGDB's services can be divided into several parts and implementing them all is not feasible within the scope of this thesis therefore it is crucial that we determine which part is the most attractive among the users.

Investigating what motivates the target user group to use the application can yield more than just simple tips and tricks that developers can use, but give the real reason behind the user's motivation to use the application in the first place. The outcome of this thesis is to create an application that will do well in both downloads and frequent use to boost the use of IGDB services and retention. The theoretical basis of this thesis comes from our studies in mobile interface design, user retention, and market strategy methods.

1.1   Background

IGDB is a new online community for gamers and game enthusiasts that offers a pool of relevant information about games and the gaming industry in one space. IGDB's goal is to create the ultimate gaming website. They have broken down this goal into four sub-goals which are listed below:

1. *"Gathering all relevant information about games in one place (a concept we call a "one-stop-infospot")*

2. *Building social and exploratory features on top of this information*

3. *Gathering a community of both Gamers and people from the game industry and let them communicate with each other*

4. *Focusing on our users and let them decide on the design and features."*[24]

The website is continuously being developed by adding more features, content, and design, improving the user experience. The content on IGDB comes from various sources of gaming related articles and reviews. But the information in the database is either user generated or *aggregated* from other sources such as steam. Users can edit game pages and contribute with relevant information about games in exchange for an incentive called *Karma points*. Users that have contributed the most are seen on the *Karma-hunter* leaderboard, as a sign of contribution in the database growth. Right now the Karma system only rewards users with a place at their leaderboard

but there are user contributed wishes and ideas about a more gamified approach with achievements and levels. IGDB's new social feed, which was in beta at the start of this project, is supposed to be their social center for the website. Here users can write comments about games and share screenshots, gifs and videos with each other. IGDB is also aggregating news from a large number of sources that specialises in writing articles about games and topics related to games or gaming. This information is presented as a feed of articles represented by an image or video, a headline and some other basic information. The users have the option of excluding sources in order to not see articles from them and by doing so they get a more personalised feed. IGDB has developed an, Application Programming Interface (API), to let their users access the data base for their own projects, as one of the principles of IGDB is the accessibility of data[23]. This lets users create their own game related websites or apps with the data they have contributed.

The goal of IGDB is to create a community where users take an active part in generating content, therefore it is important that they can access the service anywhere and at any time. As a step towards this, IGDB wishes to have a number of mobile applications that each give the user access to specific parts of their services. The features and interactions that are relevant for such an application is as of now unknown.

2

Theory

To create a mobile application that is supposed to actively engage users in IGDB's services we need to accumulate a theoretical knowledge base on which we can base all of our decisions and design choices on. The knowledge was gathered by conducting a literature study on topics that we and the company, IGDB, found relevant to the project. The topics we have chosen to study and use in this projects includes how to conduct user tests, designing for user retention, and mobile interfaces. Topics that the company found relevant involve their development process and framework as well as two books about creating addictive software and how to find the best market placement.

2.1 Literature Study

To gather information and get an overview about the project and other relevant material a literature study was conducted. The literature study took up the first four weeks of the scheduled 20-week period to gain the necessary knowledge base to plan and carry out the project. The study provided us with new insights into User research methods, Development methods and frameworks, Understanding the target user group, the use of Retention and Onboarding, as well as Mobile App development. This information was gathered with the help of trusted sources such as the Chalmers library[9] and Google Scholar[19]. Information about software development moves quickly were information and practices quickly become outdated. Other sources such as web articles has also been used as they tend to be more up to date. The combination of this theory will give us a strong theoretical foundation to base our work upon, to create an IGDB mobile application to keep their users engaged.

This study is unique as it is dependent on the services of IGDB.com, making it hard to find relevant studies into this subject. Researching for other similar studies involving mobile, engaging factors, and database services from both Google Scholar, the Chalmers library, and *Chalmers Studentarbeten* [10] we could not find any studies that discuss this subject. The subject being, how to actively engage users of a database service to use their services on a mobile platform, in our case the users are gamers and the database is IGDB.

2.2 Mobile interface Design

Interface design can be seen as a bridge between the user and the digital system. When operating a digital device, the users do so with the help of the visual interface design that is lying on top. Designing interfaces is about the arrangement and planned use of the digital components that the users will interact with[2]. The goal of the Interface is to assist the users to reach their desired goal or outcome with minimal effort.

Designing for mobile devices requires deliberate design as the display that the designer has to work with is considerably smaller than on desktops computers. There are three different design principles for mobile application today which comes from Apple, Google, and Microsoft. The application developed in this project will be for android as the majority of all smartphone owners in the world use Android phones[37]. The design principles that will be used in this project is called Material Design and is used by Google in all of their services. The material design guidelines are used to create a similar experience across any application which means that users have an easier time understanding how to navigate and use the application.

2.2.1 Material Design

"Material Design is a unified system that combines theory, resources, and tools for crafting digital experiences"

— Google (2017)

Google's Material guidelines is a living document that is constantly updated as Google keeps on developing the specifics of material design[16]. What Google wishes to achieve with their material guidelines is to develop a single system that would allow for a unified experience across multiple platforms. Material is the metaphor for their unified system of interaction and motion under a set of common principles. It is inspired by layers of paper and ink[16] where surfaces and edges provides the visual cues meant to bring affordance to elements such as buttons. Material design uses a combination of light and movement to convey how objects move, interact, and exist in the digital space. Material design is used in the Android operating system as the de facto standard, where Google recommends app developers to use these principles as well a part of their best practice recommendations[15].

2.3 User Retention and Onboarding

Users use their phones a lot more than they think. A newly performed study by dscout[1] which is a mobile research company, researched how often users used their phones. This included every interaction that can be made; tap, type, swipe and click. The study uncovered that the average user used their phone about 145 minutes, on screen time, each day[44]. During this study they also tracked how this time was spent and in figure 2.1 we can clearly spot which apps that took most of the user's attention.
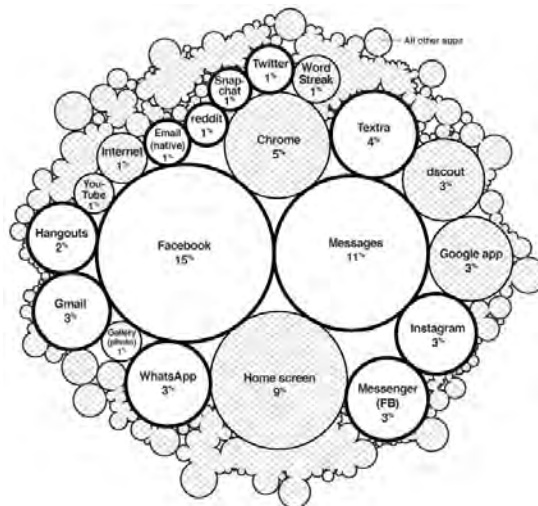
Figure 2.1: Image from the dscout study displaying most attention-grabbing apps

Facebook and Messages take the lead in gaining the user's attention the most. The answer for this can be found in the book *Hooked: How to Build Habit-Forming Products* by Nir Eyal. The author discusses how users can form habits, "automatic behaviours triggered situational cues", around products and how companies can take advantage of habits to retain and attract new users. Forming habits can be a crucial part of keeping users and survive in highly competitive markets. The Hooked Model is a framework that is based on four steps; Trigger, Action, Variable Reward, and Investment. The goal of this framework is to get the users to go through all of these hooks multiple times to create a habit and make them keep using the product.

The first step or hook is called *Trigger* which should cue the user to take action, the second hook. Triggers comes in two types:

Figure 2.2: The Hook Model

- **External:** External triggers can be information around the user's vicinity which tells the user to take action. Examples of this can be adverts, honorable mentions by friends or relatives, application icon and anything else that can remind the user of its existence.

- **Internal:** Internal triggers are memories, feelings, or thoughts that can trigger the user to take action.

External triggers are used to gain new users while the internal triggers keep users coming back.
The second step is called *Action* and this represents the simplest behaviour in anticipation of a

reward. To make actions as simple as possible the Hook Model incorporates B. J. Fogg's behavioural model and the elements of simplicity[13]. Fogg describes his six elements of simplicity as *"the factors that influence a task's difficulty"*

- **Time:** How long it takes to complete an action.

- **Money:** The fiscal cost of taking an action.

- **Physical Effort:** The amount of labor involved in taking the action.

- **Brain Cycles :** The level of mental effort and focus required to take action.

- **Social deviance:** How accepted the behaviour is by others.

- **Non-routine:** How much the action matches or disrupts existing routines.

By using these elements when designing an action, it will increase the chance of the user actually doing the action and cycle through to the next stage of the hook model[32].
The third stage of the Hook model is called *Variable Reward* and comes in three types:

- **The Tribe:** Rewards of the tribe is the social acceptance and connectedness with other people of the 'same tribe', the users of the same application, ex Facebook or Stack overflow.

- **The Hunt** Rewards of the hunt is the search of information or material resources, e.g. searching on Google for information or grinding for an specific item in a video game.

- **The Self:** Rewards of the self is the search for the rewards of mastery, competence, and completion. Examples for this can be found in game achievements or even making sure that all of the emails in the inbox are read, reach the zero unread emails.

The reward needs to be unpredictable to give the users' a feeling of variability and uncertainty to not make the reward seem too predictable and boring. In social applications such as Facebook, users' always get something new to see from their friends which keeps them coming back. If they would constantly see the same things then it would become boring and predictable, losing its appeal and their users.
The fourth and last stage in the Hooked Model is called *Investment*. Investment means that the users invests something into the application, this can be money, time or data. Investments can increase the likelihood of the users to return to the service by improving it themselves by levelling up, or adding more information to improve results. This stage builds up the anticipation for the rewards in the future. Having users invest something in the application can make them value it more, as we humans have a tendency to overvalue our own work[32]. This commitment can trigger more engagement and making the action easier and more enticing. The Hooked Model is a framework to increase retention of applications and creating new user habits. It can also be used to uncover weaknesses to already existing applications Habit-Forming potential.

2.4 Blue Ocean Strategy

The *Blue Ocean Strategy* written by W. Chan Kim and Renée Mauborgne is a marketing strategy that focuses on creating a new market space, making competitors a non-factor instead of focusing on outperforming them by offering better features or lower prices as in traditional marketing strategies. While it is a marketing strategy it can be applied in the design process of mobile applications as well. It emphasises the importance of analysing competitors and similar services as well as users and non-users to find new ways of prioritising which features that should be included in order to create a successful product and a new market space.

2.4.1 Red and Blue Oceans

The basis of the concept described in the book *Blue Ocean Strategy* is that the market is divided into two parts; a red and a blue ocean. The red oceans are the markets where several companies compete with similar services or products over the same group of customers. Blue oceans on the other hand is when a company has found their own uncontested market space. The red ocean is a metaphor where the ocean is painted red by the bloody competition between the different companies. The blue ocean is similarly a metaphor where the serene blue waters refer to a market where the company can profit without engaging in bloody competition with other companies offering similar products.

2.4.2 Value Innovation

The authors of the book the *Blue Ocean Strategy* states that what they refer to as value innovation is one of the most important factors when it comes to finding and moving into a blue ocean. They state that companies that has successfully created blue oceans have not used competitors as a benchmark but instead have focused on what they call value innovation. Value Innovation defies the established dogma that companies have to make a choice between providing their customers with great value at a high cost or to offer lower value at a lower cost. Instead of following this dogma, value innovation is about finding ways to lower cost while increasing the value for the user as illustrated in Figure 2.3. This focus on cost is not directly applicable in the form of mobile application that will be developed in this project as it will be released for free for all users.

Figure 2.3: Value Innovation

But cost does not have to be monetary, it can also revolve around other resources for example time or other factors such as excise.

2.4.3 Strategy Canvas

One of the tools used in the blue ocean strategy is called the strategy canvas. This tool is used to capture the current state of the market, which gives an indication of what factors other companies with similar products compete with. As well as what customers receive from existing products on the market. Once all the important factors for a specific market has been identified a value curve can be plotted. This is plotted with the different factors on one axis and the level of each factor on the other. This level can be how high or low the price is or how much focus is placed on convenience etc. Each person involved in the company's shift in strategy should create their own canvases. If a factor deserves a high or low score can be considered arbitrary as there is no defined universal system for grading the factors. Once these canvases are completed they are compared and discussed to find where people disagree and agree. This data is then analysed to find common patterns. Multiple patterns can often emerge if there is for example premium and budget brands. The goal of the blue ocean strategy is to find new ways of prioritising these factors or coming up with new factors that can attract non-users as well resulting in a value curve that is significantly different from the curves of the rest of the industry. This will describe the strategic move that will lead to the transition into a blue ocean. Figure 2.4 shows an example of how a strategy canvas can look, in this case it describes the value curves of the average industry standard (red) compared to an alternative curve based on the blue ocean strategy (blue).
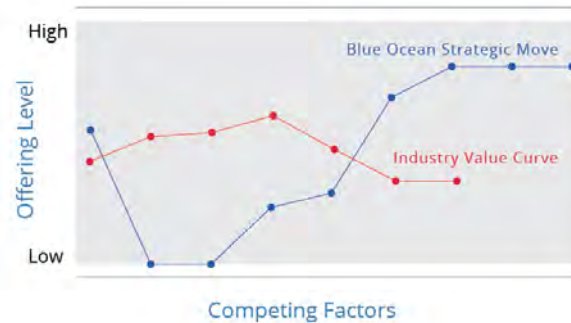
Figure 2.4: Example of a Strategy Canvas from the Book: Blue Ocean Strategy

2.4.4 Four Actions

The four actions framework of the blue ocean strategy can be used by actors in competitive markets in order to restructure their products and distinguish themselves from what is offered by their competitors. This framework offers four steps to create a value curve that is distinctly different from the what the rest of the industry offers.
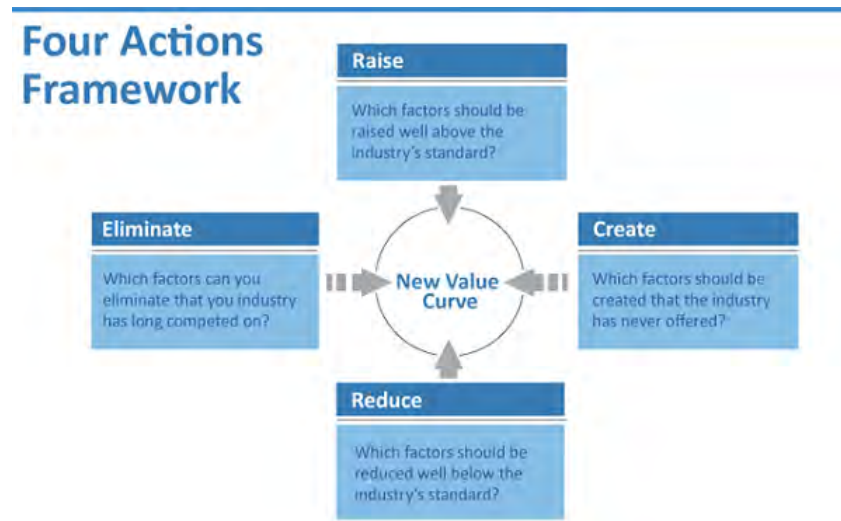
Figure 2.5: Four Actions Framework

W. Chan Kim and Renée Mauborgne refers to the first action as *Elimination* and describe the goal of it as finding which factors can be removed from the product or service. These factors may be something that users for example have previously valued but no longer care for. The second and third plot points in figure 2.4 are examples of features that have been eliminated in the blue ocean strategy curve. This action helps reduce the cost of the product and also helps to limit the scope to keep the product or service relevant for the target user group. The authors refer to the second action as *Reduction* and the goal is to decrease the level of some factors. These factors may be something that has been given too much prominence when companies compete to outperform the other actors in the industry. The fourth and fifth plot point in figure 2.4 has been reduced in the blue ocean strategy curve. Just like in the first action this helps free up resources and helps bring the product or service closer to what the users need and want.

The third action is called *Raise* and it is the opposite of the second action. The goal is to make some features more prominent than they are in other products offered on the market. This is another way of distinguishing a product or service from its competitors and make it more appealing for the target user group. This is visualised in the sixth and seventh plot points in figure 2.4. The fourth action is called *Create* and the goal is to create new features that does not exist among what is offered on the current market. These can for example be features that appeal to previous non-users that is now part of the target user group. Plot points eight and nine in figure 2.4 illustrates newly created features on the blue ocean value curve.

2.4.5 Six Paths

W. Chan Kim and Renée Mauborgne found in their research that there are six recurring patterns when creating new market boundaries and blue oceans. They used these patterns to formulate a framework called the Six Paths Framework. The most important aspect of this framework is to look for answers in new places. This includes to look for inspiration in other industries than the one the product or service is being developed for, or in the same industry but looking at actors that target other user groups. Another approach is to look at other potential target groups but also to look at surrounding factors that are not directly related to the product or service itself. The authors use cinemas as an example, they talk about how they should look at external services such as babysitting as this can have a direct impact on their own business, parents are unable to go to a movie screening if they are unable to find someone to take care of the children. Yet another approach, is to look into the possibility of shifting between trying to appeal to the users with functional aspects and emotional factors. Lastly the authors also talk about looking at observable trends and using those to predict a possible or likely direction for the market and adapting to that.

2.5 Agile Development

Agile Software Development is a set of development principles and practices based on the Agile Software Development Manifesto that was created in early 2001[3]. Agile development methods started to take root during the 1990's where developers found the 'traditional developing steps' frustrating. These steps are; Elicitation and documentation of the requirements, architectural and high-level design, and development and inspection. These methods need the set of requirements in advance which customers might not be able to provide. This resulted in the creation of many agile methods and practices to deal with this uncertainty.

The 'Manifesto for Agile Software Development' was created during a gathering of 17 software development practitioners, representing different agile approaches, to discuss new software development methods and share their ideas and approaches. The Agile Software Manifesto was created as a result of this meeting. The Manifesto states:

"We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value

- ***Individuals and interaction*** *over process and tools*

- ***Working software*** *over comprehensive documentation*

- ***Customer collaboration*** *over contract negotiation*

- ***Responding to change*** *over following a plan*

That is, while there is a value in the items on the right, we value the items on the left more"[4].

Although they are different development approaches, they seemed to share the same underlying principles as can be seen from the Manifesto above.

Traditional methods, such as the waterfall model[22], tries to be predictive in the sense that it requires all of the requirements in advance. This way the developers can create a plan for the entire development process from start to end. The method can ensure the development of complex systems to be built in one iteration without the need to return to the requirements and ideas. This type of process can be compared to a physical engineering process of construction. Where you need to have a clear plan and requirements for the process as returning to another part or redoing something can be very costly. Software is more flexible in how it is constructed and in which order different parts are created. This makes it possible to use an Agile development method as every requirement is not always known at the start of a project and does not need to be known in the same sense. Traditional methodologies are made to discourage the customers to change their minds, to hold a predictable schedule and in doing so they become a hindrance to realising the customer's changing needs.

Agile development practitioners find that their methods make them highly productive and they use an adaptive planning process which means that they can respond quickly to change[35]. They have an tacit knowledge process, by letting the developers plan their time themselves, and their frequent delivery of value, meaning that they deliver more code with less bugs[35]. Compared to the traditional methods which try to stay predictive with their planning schedule, the Agile methods hold an iterative approach where they can create, user test, and improve. The traditional methods put less emphasis on testing during the development process. The Agile development life cycle is divided into smaller parts or iterations with minimal planning throughout the development. The length of these smaller parts are usually between one to four weeks where the entire development team, usually five to nine people, handle the planning, requirement analysis, design, coding and unit testing. Dividing everything into smaller parts help keep the development more Agile and adaptive to changes that might appear. Traditional methods often use written documents for requirements and specifications which the developers read through before start. In Agile development there is less documentation of this kind and more vocal communication, and tacit knowledge, as all of the developers usually are in the same location which makes it easy to ask questions or discuss solutions[35].

2.6 Scrum

The Agile software development framework that will be used in this project is called Scrum. The definition of Scrum is: *"A framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value"*[30]. Scrum is inspired by the empirical inspect and adapt feedback loops to handle the complexity of the problems[26]. Empiricism uses knowledge that comes from empirical evidence, knowledge based on experience or observations, Scrum does the same. Scrum uses an iterative approach to control risk and optimize predictability[30]. The framework asserts three important aspects of every development process which are; Transparency, everyone on the team should

understand the problem and the desired outcome, Inspection, the team would occasionally inspect the progress of the iteration, and Adaptation, if a member finds something that deviates from the desired outcome adjustments has to be made to reach an acceptable outcome. The Scrum team has three roles to fill which are:

- **Product Owner:** The product owner is the person that has the vision for the product. Responsibilities that the product owner has is to continuously maintain and prioritise development tasks from the Backlog, which is a list of task that needs to be done to complete the development.

- **Scrum Master:** The Scrum master's responsibility is to make sure that everyone involved understands Scrum and follows the Scrum rules. The scrum master works to remove impediments to make sure the iteration runs smoothly. This helps keep the team on track making their success visible for the product owner.

- **Development Team:** The development team is the rest of the people involved that are actually developing the product. The team is completely self-managing as they themselves decide how to organise and plan the work. The team's responsibility is to reach the goals of the iteration [26].

Agile software development divides the development time into smaller iterations, this is also done in Scrum were these iterations are called Sprints and are usually one to two weeks long but can stretch as long as a month. When one sprint finishes the next one takes its place until the product is considered done. During a Sprint the development team goes through a few stages which are; Sprint Planning, Daily Scrums, Development, Sprint Review, and Sprint Retrospective.

2.6.1 Sprint Planning

The work that is to be conducted during a sprint is decided and planned before the development starts. The set time for Sprint planning depends on how long the Sprint will stretch, for one month sprints the planning should take up to eight hours while it is shorter for shorter Sprints. It is the Scrum master job to ensure that all that should be present attend and that the time is kept. Once the Sprint planning is concluded the development process can start and it will end at the beginning of the next Sprint, even if the goal is not reached. The left over tasks will be planned in during the next Sprint Planning with the rest of the new content.

2.6.2 Daily Scrum

A Daily Scrum is a short status update meeting that lasts up to maximum 15 minutes where the Scrum master goes through three questions with each team member:

- What did I do yesterday that helped the Development Team meet the Sprint goal?

- What will I do today to help the Development Team meet the Sprint goal?

- Do I see any impediment that prevents me or the Development Team from meeting the Sprint goal?

The goal of the Daily Scrum is to improve communication between the team members and eliminate obstacles by letting the team adapt to the situation. The meeting will promote quick decision making and improve the team's level of knowledge[30].

2.6.3 Sprint Review

A review of the work conducted during the Sprint as well as a demonstration of the functionality to the Product Owner and other interested parties. The Sprint Review is conducted at the end of a Sprint to give every interested party a chance to see the current status of the product. The Review has a time constraint as everything else in Scrum, for a month long Sprint the time for the review is set to four hours and is shorter for shorter sprints. The Scrum master makes sure that everyone attends this meeting and that the time is held.

2.6.4 Sprint Retrospective

Everyone involved in the Sprint gather for this meeting to discuss their experiences and problems to improve the next Sprint. The Retrospective is the last stage in a Sprint before the next one, before the next Sprint Planning. This meeting time scales with the length of the Sprint, four hours for a monthly Sprint and shorter for a shorter Sprint. The Scrum master makes sure that all involved attends this meeting and holds the time constraint. In this meeting the Scrum master also takes part, other than enforce the rules, to account for the scrum process. The purpose of the Sprint retrospective is to check how the Sprint went in regard to people, relationships, the process, and tools to identify problems that can be improved upon to the next Sprint.

2.7 Ethics

As people with no relation to the design or development team will be involved in the design process it is important to follow ethical guidelines for how to handle their personal information and the information provided during the studies. The guidelines that we will adhere to during this project are presented in this section.

2.7.1 Anonymity & Confidentiality

For users to feel truly comfortable and be willing to participate in the study, it is important that their identity remains anonymous or at the very least confidential. To keep the respondent's answers and identity anonymous the researchers have to make sure to not have any identifying information for this person such as names or usernames that would allow anyone to identify the participant. If this is not possible the users should be promised that the researchers will not divulge their identities to any other external parties such as the company providing the service in the case of this project[7].

2.7.2   The Right to Withdraw Without Penalty

In the case of a participant not wanting to follow through with the entire user research activity it is recommended that they still receive the full incentive reward[7]. When it comes to quantitative user research where respondents answer online it is likely that many participants will start the activity and instantly abandon it if they know that they can get the reward without having to finish the activity. Therefore, it is not appropriate to give the incentive to users that do not follow through with the entire survey. In other contexts, where the respondents have made some sort of commitment to partake in a research activity such as travelling to a lab, or taking time off work it is only fair that they receive the incentive reward although they do not finish the activity as a show of gratitude.

2.7.3   Appropriate Incentive

In order to motivate more potential users to take part in user research the researcher could offer some sort of incentive. It is debated whether or not it is appropriate to use incentives to attract more participants[20]. If any sort of incentive is offered to participants it is important that it is proportional to the amount of work the participants do. If the offered incentive is too small it serves no real purpose and the amount of participants will suffer, if it however is too great users may feel compelled to take part as the reward is too great to lose out on[7]. Compelling users like that is unethical as they can no longer be considered willing participants but rather coerced. A proportional incentive helps motivate users to participate but users that are not interested in taking part does not feel forced to do so.

The user research conducted in this project will likely have a small incentive in the form of Karma points. Karma points is a scoring system used on the IGDB site to rank users based on how much they have contributed to the database. Karma is usually rewarded to users that complement information such as which studio has developed a certain game, when it was released or adding screenshots/videos from the game etc. This is in many ways an appropriate incentive as it is an established system that is already meant to motivate users to help improve the service but it is also small enough that users that are not interested in taking part does not feel pressured into doing so.

3

Methodology

The methods that will be used during this project are listed below. These methods are well known methods and are often used in the field of interaction design. This chapter contains an account of our planned methods for User Research, Prototyping, and Development. As well as alternative methods that was considered for the project but was later discarded.

3.1 User Research

The planned start of this project was to conduct user research with the goal to find out what the users enjoy about IGDB in its current version, and what they would like to have more accessible in the form of a mobile application. These studies will provide us with the users' requirements for the IGDB mobile application. The methods that we plan to use are listed in this section.

3.1.1 Survey

Surveys are effective methods to gather large amounts of information in a relatively short time span. Surveys are often perceived as easy to create and deploy as they usually only consist of simple questions, but this is not truthful as there are many factors that might determine the success and usefulness of a survey. When using surveys there are a few factors to be aware of. *Selection bias* is a term used with surveys which means excluding certain units of data as the data might come from people that you have close by, friends, students, family etc, this is referred to as *Convenience sampling*. Surveys are often free to answer and participate which means that not everyone that notices the survey will answer it. The usual response rate can lie in between 20 - 60% while it is usually closer to 20%[7]. This is called the *Non-response bias*, which can be improved upon to get a higher response rate by keeping it short and tailored for the intended target group. *Statistically Significant* results are often connected with user surveys which roughly translates to, how many users need to respond to the survey in order to get a statistically significant result. A statistically significant result means that enough people has responded to the survey that it can be seen as representative for the entire user group and that the researcher can be confident in the data yielded.

The most important factor is the questions. Poorly formulated questions will yield worthless data and a waste of time. The questions should be short as well as few in number, to not intimidate the respondents. They should be relevant to the re-

search question and problem, to not yield useless data. With the relevant questions answered the outcome will yield a lot of data that needs to be summarised and analysed to get the user requirements. A properly performed survey can result in invaluable information that would be lost if users were not involved in the process, Yoland Wadsworth states quite eloquently that "if the choice is between a sole manager making a decision about service options on their own, and that same manager asking the people in the adjacent offices for input or presenting their ideas to the next staff meeting, they will almost always be surprised and informed by even this simplest of surveys"[43]. This captures how valuable user research is and how important it is to rely on external sources for input before making important decisions.

3.1.2   Questionnaire

Questionnaires are a common way to gather quantitative data from a large number of respondents in a fairly short amount of time. The first step in designing a questionnaire is to determine the purpose of the questions, in other words what do you want to learn about the respondents. Then questions are formulated based on this purpose. A questionnaire should not take too long to fill out or have too many questions as this will reduce the amount of respondents that are willing to complete the questionnaire. According to research done by SurveyMonkey, if a survey takes more than 7-8 minutes to fill out the completion rate will affected negatively[41]. Individual questions should not be too long either, respondents have often formed an opinion on what a question is about after having read about 10 words, after which they are likely to proceed to answering the question[8].

3.1.3   Focus Group

A Focus Group is used to ensure that a prototype is relevant and on the right track. This is done by presenting the prototype to a group of stakeholders, experts, and users in order to get feedback on what is good and bad with the design[7]. The same approach can also be used to evaluate the validity of a survey prior to it being sent out to its respondents. The goal is to make sure all questions can be understood and all instructions are clear before the survey is sent out to the intended group of respondents. The survey is filled out by the group where they give their opinions on how the survey can be improved before it is deployed. Focus groups can be used iteratively[7] in a design process where the designers can call back the same participants to get feedback.

3.1.4   Statistical Significance

The use of statistics in surveys is quite common to interpret the results of a survey. Through statistics we can see if the answer is statistically viable. This means that we can see how close the answers represent the entire user group, the population. The first issue we had was to set an agreeable sample size, how many people would need to answer our survey for it to be deemed statistically significant.

$$Sample\ Size = \frac{\dfrac{z^2 \times p(1-p)}{e^2}}{\dfrac{z^2 \times p(1-p)}{e^2 \times N}} \left| \begin{array}{l} N = Population\ Size \\ e = Margin\ of\ Error \\ z = Confidence\ Level \\ p = Percentage\ Value \end{array} \right.$$

Figure 3.1: Equation of the sample size

The sample size equation, see figure 3.1 calculates the sample size, which represents how many people that need to answer the survey for it to be statistically significant. To calculate the Sample size, it was necessary to know or decide the following:

- **Population Size:** The size of the represented population, in our case it is all of the unique IGDB visitors per week which is around 47 000 visitors.

- **Margin of error:** The size of the error around the answer, states how accurate the answer is. Based on the answer it is possible to calculate the margin of error for our survey to be at plus/minus 5%.

- **Confidence level:** The confidence level tells us how reliable the results are, the levels are commonly placed at 90, 95, and 99%. The higher the confidence level is the more reliable the result is. The target confidence level of this survey was set to 95%, which was deemed to be sufficient.

- **Percentage Value:** Is the sample size requirements based on the percentage of users that choose to answer the survey. The standard practice is to keep this at 50% for surveys with more than one question, hence it was kept at 50%.

3.2 Prototyping

Prototyping is a useful tool during design conceptualisation of a product. They are used as means of communication between designers. Using prototypes to combine different ideas is a widely used and effective method for mutual understanding as it is recognised in many disciplines as an important aspect of the design process [27]. Prototyping can also be used to test the idea for the designer as well, seeing the idea on paper might reveal much that would have gone unnoticed. Prototyping is divided into different levels of fidelity depending on how detailed, and similar to the final product they are. These fidelities range from low- to high-fidelity.

3.2.1 Low-fidelity prototypes

Low-fidelity prototypes do not look much like the final product. They are a first step towards a valid design. They can be drawing on paper or even made from paper. Low-fidelity prototypes are simple, cheap, and quick to create, which means that they are easily discarded and even modified to explore alternative solutions.

Low-fidelity prototypes are never intended to be integrated or even become the final product, they are only for trying different solutions to an idea [27].

3.2.2   High-fidelity prototypes

High-fidelity prototypes are closer to the finished product, as they could include all the features and even be made from the same material that is intended for the final product. The disadvantages of working with high-fidelity prototypes are that they are more expensive to create and more time-consuming than low-fidelity prototypes. The advantages of High-fidelity prototypes are that they are better for showcasing one's' ideas to others as they are close to the finished products [27].

3.3   Mobile Development

This project's purpose is to develop an mobile application for IGDB. The application will be an Android application as Android's global market share was over 80 % during the fourth quarter of 2016[37]. Making it a suitable platform to prioritise as IGDB's service is global and the goal is to reach out to as many users as possible. The development process will follow Scrum, an Agile development framework, to plan the work. This is also the company's general development process; hence a scrum master will be provided during the development. When developing for Android it is recommended to use Google's own Integrated Development Environment (IDE) for Android called *Android Studio*[14]. Android provides a lot of learning material for Android development using Android Studio which will simplify the development process by using their own Integrated Development Environment, IDE.

3.4   Other Methods

There are many methods to choose from when conduction user research and design. During the time period of this thesis there was not enough time, or a need, to use them all. This chapter has gone through the methods that were considered and used but they are not the only reasonable methods that can be used for this project.

3.4.1   Interviews

Interviews are among the most frequently used survey methods for understanding the needs and problems of the users[7]. An interview is a guided conversation between the interviewer and the interviewee and it comes in three main varieties; Structured, Unstructured and Semi-Structured interviews. *Structured interviews* are predetermined questions that the interviewer would like answers to. An *Unstructured interview* is more like a conversation between the interviewer and the interviewee as they would converse around a topic, this requires the interviewer to be invested in the topic to be able to guide the interviewee to talk about the interesting questions. *Semi-Structured interviews* is a combination of structured and unstructured where the interviewer has a list of questions/topics to converse with

the interviewee to gain more insight. Semi-structured and unstructured interviews have the advantage that the researcher is able to adapt more freely to the conversation. This means asking follow up questions based on interesting answers that is received during the interview. While structured interviews are static with no room for additional questions based on what is said during the interview[7].

Preparing an interview, the researchers conducting it need to choose which type of interview they should prepare and what questions to ask. There are advantages and disadvantages with each of the varieties; With a Structured interview it may be hard to understand the answers without insight but are faster to analyse and give Quantitative data, Unstructured interviews can be more difficult to analyse but are rich with data and give Qualitative data, and Semi-structured takes long to analyse and provides both quantitative and qualitative data.[7]

3.4.2 Personas

A Persona is meant to help designers keep track of who will be using the product that is being developed. A persona is a description of a fictive person that represents the behaviour, goal, skill sets, requirements, and expectations of a typical user of the product[2][7]. It is very hard if not impossible to describe every aspect of your users with only one fictive persona therefore it is common to divide the personas into a primary and a secondary. The primary persona represents the majority of the use base and has the most typical needs, expectations and so on. The secondary persona represents another type of users that is not as common but still a part of the targeted user group, these users have other needs or expectations that set them apart from the primary users[7][2].

Personas help designers determine what the most important features of a product is by always having the goals and tasks described in the personas to refer to when designing. It is also a potent tool for communicating with other stakeholders such as developers, product owners or other designers, by having the persona as a common corner stone to refer to when discussing[2][7]. It can also be useful when communicating with people responsible for marketing to ensure that the product is marketed to the same group of people as it is designed for.

A persona can also be used to make sure that the design does not deviate from what it is intended to become, the designer can do this by asking question such as "does this feature satisfy the needs specified in the persona" this does not in any way replace user testing but it is still a quick and inexpensive way of making sure the design stays on the intended track.

4

Process

This chapter presents the work process of this thesis in a chronological order. Here we present how we used the methods described in chapter 3. This chapter goes through our User Research, Market Analysis, Prototyping, Implementation, and Deployment.

4.1 Previous User Research

The company has invested in user research before our study which was aimed at improving IGDB's services from the perspective of user retention. The methods used for this research were; Competitor analysis, Surveys, Co-creative workshop, User experience test, Behaviour groups, and User personas. The researchers were a group of students studying Business and Design in Gothenburg. The most interesting results from their survey was the results of the questionnaires. They created and sent out two different questionnaires using Google Forms, one called "The Gaming Survey" and the other called "IGDB Feedback Survey". The first questionnaire was sent out via Facebook and spread by the researchers' friends online. This questionnaire was a general survey about games and gaming in general which received a total of 152 responses. Their results from this survey gave them information about the current interests of potential IGDB users:

- Online Activities

  - Playing Games: 68 %
  - Social Media: 66 %
  - General Surfing: 65 %

- Offline Activities

  - Socialising: 51 %
  - Sports: 43 %
  - Reading/Writing: 65 %

- Time Spent on Games per day

  - 2-3 h: 41 %
  - <1 h: 32 %

– 4-10 h: 24 %

The other survey was sent out via IGDB.com and received 47 answers. Their results from this survey gave them information about what IGDB's users felt were the most important feature and why they visit the site. The most important features were the Search Engine, User Reviews, and adding games. Their reason for visiting the website were the Lists, the Database, and the Game information and reviews.
Before the deployment of our own Questionnaire we looked at these old questionnaires for inspiration to see what number of answers we could expect, to see how accurate the results could be using statistical significance.

4.2 Questionnaire

The focus of the questionnaire was to be mobile related to see what the users think about IGDB's services when using a mobile device, perhaps through the mobile version of the website (m.igdb.com). The questions were formed around three topics:

- **Mobile:** Which apps are the respondents currently using, their mobile operating system and what they would like to be able to do with a gaming related mobile application.

- **Reasons to use IGDB:** What features of IGDB are they currently using and might these features suit a mobile application. What feature might be most relevant for a Minimum Viable Product, MVP.

- **Social Media:** Move closer to IGDB's newest feature which is a social feed, to see if it is relevant for users as a mobile feature as well for the site.

Based on these topics we formulated just over 20 questions including five basic demographic questions to establish who the respondents are. To validate these questions, we organised a focus group with the entire team behind IGDB. In this focus group, we started by explaining what we were going to do and what we hoped to get out of it. We also established some simple rules for how to behave during the session, such as only one person at a time may speak, no ideas are bad as they can all lead to rewarding discussions and that everyone is equal during the discussion, no one should dominate the discussion.
This was followed by a short warm up where everyone would take turns to describe their vision for this application followed by a short discussion about whether or not that vision is something they believed their users would want to have. This helped them think from the perspective of a user instead of their own. After the introduction and warm up, we went through each question and asked for their opinions to determine if the questions are relevant, understandable and if there's any needless questions or if any important questions are missing. Based on the feedback received in this session we could reduce the total number of questions down to 16 and improve the remaining questions to better accomplish our goal.
IGDB has previously conducted a user study about their users and what they think about the site, see section 4.1. This survey was also done using a questionnaire which

we found to be relevant research material for our own study. Using the material and results that they have received in the past to improve our own survey as well as confirm or refute the old results. The questions we used for the survey can be found in the appendix, see Appendix A.

4.2.1 Survey Client

When conducting a digital questionnaire, the tools are important to be able to design the survey in the best possible way. The tools that we found relevant and which we in the end chose from where; *Google Forms[17], Surveymonkey[40]*, and *Hotjar*[21]. Google Form was our first choice, mostly because we are so immersed in the Google ecosystem as students but also because it is easy to cooperate in creating the survey. Google Forms is quite basic and has most of the question layouts and logic you may need, it is even possible to write your own JavaScript's to adapt the behaviour of the form. But there was one simple layout that was missing. The layout that we wanted to achieve was to present the user with a *likert scale*[42], where these numbers were placed horizontally not vertically which was the only way in Google Forms. This made us consider another tool called Surveymonkey. Surveymonkey is a world leader in delivering web surveys and is used by a lot of companies and organisations[40]. Where Google Form was a basic tool, Surveymonkey is much more advanced with more question layouts as well as easier to use logic such as: 'if the user answered Yes then show this question'. The frustrating part here was that not even Surveymonkey could create the question layout the way we wanted it to be. The way Surveymonkey could come near the layout was to use rating. What the rating does is fill the number of stars that the user selects instead of just selecting one, see figure 4.1.

Figure 4.1: Image from Surveymonkey illustrating ratings

At this state we decided to change layout and use a vertical solution instead. IGDB is currently using a tool called Hotjar which package it self as a *All-in-one Analytics & feedback service*. IGDB is using this service to get user feedback from the site, this feedback includes a 'user mood', comment, and a screenshot of the problem, see figure 4.2.

Hotjars surveys where much like Google Forms with some extra features. As Hotjar is already integrated on the site it can automatically invite users to the survey with the help of a pop-up which can be controlled in a few different ways (called
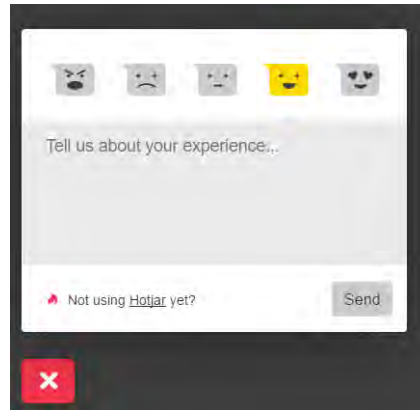
Figure 4.2: Image of the Hotjars messaging window on IGDB

Behaviours); Show Immediately after the page loads, Show after a delay of # seconds, Show when user is about to abandon the page, and Show when user scrolls halfway down the page. We choose to use the second behaviour which we set to one second, letting the page load up before displaying the invite to the survey. Hotjar remembers the users that have answered the questionnaire or closed it, and it will not be shown to them again. This way we could avoid inconveniencing the users by displaying the pop-up repeatedly. This feature gave hotjar an edge over the other tools as it could drive more users to the survey, combined with advertisements on the site the amount of potential answers increased greatly. Question layouts was a luxury that could be easily remedied by reconstructing the questions to fit with what we have.

4.2.2 Survey Summary and Analysis

The planned time for the questionnaire to be accessible by the users was one week. After one week, it would be taken down summarised and analysed. Once the questionnaire was 'complete' the results were summarised so we could present the findings to ourselves and to the company. Looking at the analytics for the week that the survey was active the website had around 47000 unique visitors where 349 choose to answer our survey. Many results verified previous beliefs and assumptions while other lead to new insights, here are some examples of the results:

- **Gender:** 74 % of the respondents said that they were male, were only 14 % said that they were female. The rest of the answers were *Other* and *Don't want to share.*

- **Occupation:** Most of the users are Students (45 %) the second largest occupation were Full-time employment (41,6 %).

- **Reasons to visit IGDB:** The largest percentage of users visit IGDB to get information about games (26,3 %). The second largest wants to discover new games to play (17,6 %) and the third largest wanted to organise their gaming lists (14,3 %). These results look similar to the most wanted mobile features.

- **Mobile OS:** The largest percentage of the users are Android users (54 %) which fits our hypothesis compared to mobile OS in the world. The second largest is iOS users (25 %)

Other answers gave more interesting results like the question for the user's age where the results showed an even distribution across all ages. The results for the users most used mobile applications showed us the importance of social networking as the top five where; *YouTube, Facebook, Instagram, WhatsApp,* and *Twitter.* This was not a surprise but it served as an indication that for IGDB to get more users and a higher retention rate social features showed promise. Interesting for IGDB is that most of their users that answered came from Mexico which almost had more than double the number of respondents compared to the United States, one of their targeted regions (North America & Europe). This was because of an ongoing marketing campaign that was supposed to drive in new users to the site which marketed IGDB.com in Mexico.

During the survey summary and presentation to the company we went through all of the questions and answers in turn, see the survey presentation slides in appendix B. The presentation gave them a better understanding of what their current users think about the service and what features and improvements they would like to see, such as game recommendations based on user statistics. To end the presentation, we showed the company a compilation of all the encouraging words and thoughts their users left them to see that they are on the right track and that users appreciates their efforts.

The conclusion and result of our survey is that the users mainly use the service to search for information about games and they want to discover new games to play.
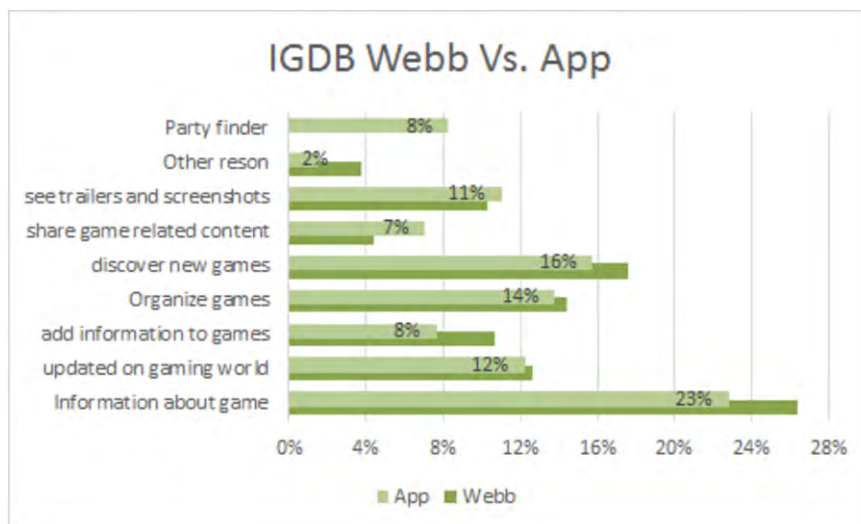
Figure 4.3: IGDB features vs requested App features

Comparing the reasons for visiting IGDB and what features the users were interested in for the mobile application we can clearly see that the top three are: *Search for information, Discover new games*, and *Organise games.* Many users considered IGDB to be the IMDB[25] for video games and would like to use it as such, requesting more functionality and accessibility for their lists. Because the users want to be

able to search for games with the application this will become our focus during development, searching for games and viewing these games pages which makes sense as the backbone of IGDBs services is the game database. IGDB is trying to improve their service by expanding into a social network for gaming, opening the doors for a whole new audience of users. One reason for the low numbers in the social aspects can be that the targeted users for this new service has not found it yet. Therefore, we decided with the company to expand the application to include their new 'Social Feed' to give users quick access as well as to drive more users to use it more frequently.

Our goal for the company was to develop an MVP of IGDB's search functionality with the game pages, but in case that we finished prematurely we are also prepared to implement their social feed. The feed is their first step into a social community and it was already integrated into every game page, displaying posts related to the game. The feed would be included into the second iteration of the project if there was time. The project could then be divided into three stages adding another of the users' functionality wishes:

- **Stage 1:** MVP based on IGDB core functionality which is: Searching for information about games. The MVP's core functionality is built up of the search and the game pages.

- **Stage 2:** Add the Feed into the application and to all the game pages. User profiles will also be developed, as only users can post something on the feed. Functionality for following pages and people will also be created.

- **Stage 3:** Add list functionality to the application letting the users access their lists, Edit, and create new ones with ways to sort them.

Our main goal is to finish the first stage and deploy it on Google Play Store[18] where the other stages are deemed a bonus if there is development time left.

4.3 Analysis of previous personas

During our analysis of the research previously conducted by IGDB we found some personas that had been created for an earlier version of IGDB. Asking the team about them we found that they were not used as they could not understand them, and they did not gain anything from them. Looking closer at those personas, to see if we would improve them, we discovered that we could not understand them as well as the personas were constructed like spec sheets of their three most common user groups which were called; The Collector, The Contributor, and the Surfer. The flaws of these personas lie in their presentation. While they are pleasing to look at you do not understand the person behind it. Personas are supposed to be imaginary people, representing real users, with names and lives of their own. These personas had none of that, but where made up of sliders that should describe their characteristics instead of text. This makes it hard to understand the motivations, frustrations and goals. Personas need a face together with the name as a visual representation, The Contributor personas face was Batman. While making, the

personas feel more entertaining, this disrupts a person's view of this character. Batman is a huge character that almost everyone knows about, especially in the gaming community. People already have a vision of what Batman is like in their own minds. Using him for a persona will only confuse the designer using it later. Improvements to these personas would be to add some text, describing this person in some detail to help the designer understand who he/she is designing for. Test for their motivations, frustrations, and goals is something that personas should have[7].

Figure 4.4: Image of the Collector Persona

We tried to resolve this issue by using data that we have acquired from our own survey where we managed to see differences in user behaviour based on their country. The challenging part of creating personas from our data is that it was designed to give us information about their overall use of the service and what they would like us to focus on for the mobile MVP. This meant that we had no real questions inquiring to their frustrations and goals with IGDB. We could only speculate with our data to find these things. This ended with three half complete personas that was discarded as they would not help the team in any way as well as they were missing a lot of information that would make someone understand the person behind it. To create them properly we would need to create another survey or better jet hold interviews with target users to identify the different users of IGDB's services. Those questions would have been focused on the three main parts of a persona; *Motivation, Frustration,* and *Goal.*

4.4 Blue Ocean Analysis

The first step of performing the Blue Ocean Analysis was to identify other applications and services that could be considered competitors of IGDB. These applications were identified using the data from the survey, recommendations from the IGDB staff as well as us searching for other services offering a similar set of features. The following apps were included in the analysis:

- **Player.me** The application that according to our assessment is most similar to IGDB.com. Many of the features it offers is more or less the same as what IGDB.com offers but there are of course some features that differentiate the two applications. Player.me has for example put more emphasis on social aspects such as messaging functionality between two users or making groups with other users that share a common interest.

- **Amino** differs from other applications in the sense that it is a collection of smaller communities each dedicated to a specific topic. We have mainly looked

at the video games sub community but the type of content that is offered is basically the same in each community. The core of the application is to allow its users to chat with each other via group chats or by posting text and pictures on a feed visible for all members of the sub community much like in other social media such as Facebook. However, they do not offer any aggregated content, it is all user generated.

- **Appy Gamer** is a news aggregator focused solely on news from the world of gaming. The application aggregates news from a large number of news sites on the web. However it is very limited when it comes to social interactions between users. The only social feature offered is the ability to follow other users and see how they react to different news articles and of course vice versa to react to articles yourself and let your followers see this.

Other applications were also analysed that offers similar functionality without being direct competitors due to them targeting other user groups or offering content that can be aggregated into IGDB's services. Some of the applications that was analysed is described below.

- **IMDB** is in many ways similar to IGDB, it is also a vast database where users can see ratings and other information but instead of games it contains information about movies and other related topics such as actors. IMDB does not offer the same social features as IGDB though, especially after they recently closed down their discussion boards[25] that was their main source of user to user interaction. It is however still a good source of inspiration as it is an immensely successful application.

- **Goodreads** is in most ways similar to IMDB but it is instead of movies and tv shows it focuses on books. Users can rate and review books they have read, they can create various lists of books they are reading, have read, want to read and so on. Goodreads also enables their users to create groups where they can discuss specific books or topics.

- **Fishbrain** is a social media entirely dedicated to fishing. It is in most ways similar to Facebook but any post made is visible to all members of the community and the information that can be included in a post has been adapted to suit fishing. Users can post information about their catches including size and weight of the catch. This is an interesting source of inspiration as they have created a social network based on a very specific topic and have done so successfully.

- **Untapped** is in principle the same thing as Fishbrain but instead targeting beer enthusiasts. Of course they have their own take on how to design the application and it offers another interesting perspective to be inspired by in the design of IGDBs application.

4.4.1 Strategy Canvas

After having analysed these applications we reached the conclusion that the most relevant competitors to use for the Blue Ocean Analysis was Player.me and Appy Gamer as these two are directly related to gaming and the two combined cover more or less all the functionality offered by IGDB. We quantified the applications in a strategy canvas based on nine different factors with the goal of doing the same on the IGDB service to see how it compares to them and to see how it can be adapted to outperform the other two. The factors chosen for the canvas was:

- **Onboarding** How well the application helps users get started. For example having a setup process when starting the application for the first time that helps the user set up a profile.

- **Social** Any functionality that involves users interacting socially with each other. This can be for example friend and follow functionality or discussion groups.

- **Design & UX** How good looking the service is as well as whether or not using the service is a positive experience, the system behaving as the user expects it to etc.

- **User generated content** How much of the content attracting users is generated by themselves or other users. For example posts, status updates or reviews.

- **Generated content** How much content is added to the service without the users being directly involved. This includes among other things aggregated news and videos from other sources such as YouTube.

- **Gamification** Game inspired elements meant to enhance the experience of using the application. Examples of this could be levels or achievements for using the service.

- **Discovery** Functionality related to helping the user find new games or articles that they were not aware existed. This can be for example recommendation features based on what the user has previously rated or top lists provided by the service.

- **Retention** Aspects of the application that encourages the user to return to the application. For example push notifications that notify the user when something that that user has previously interacted with is updated.

- **Lists** Is it possible for the users to create personal lists and is it possible to sort/rearrange the lists.

Each of these factors were assessed on a relative scale from low to high which resulted in the strategy canvas seen in figure 4.5.
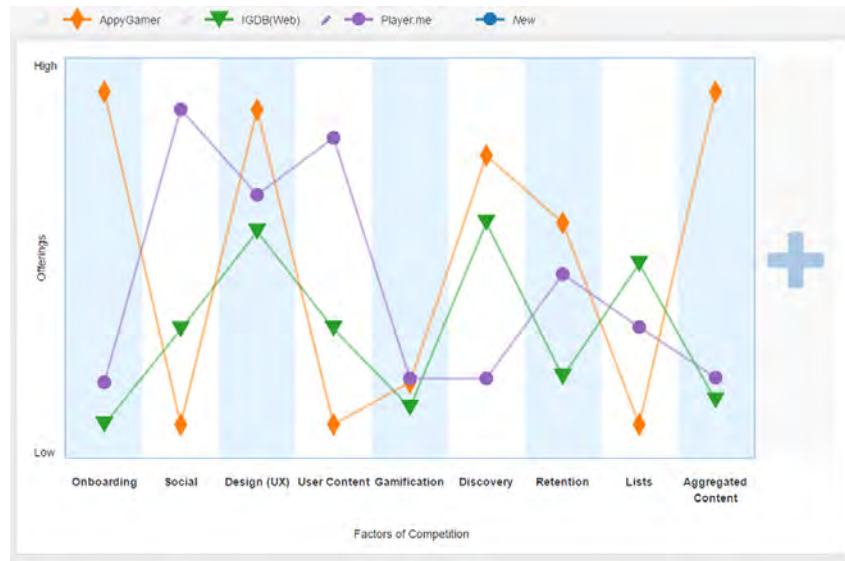
Figure 4.5: The resulting Strategy Canvas after our comparison of Appy Gamer, IGDB, and Player.me

4.5 Prototyping

With the user research finished and presented it was time to start creating concept prototypes of the application. In this chapter, we will go through our prototyping process going from paper prototyping to interactive prototyping.

4.5.1 Design choices

The applications design is based on Material Design which is a set of design guidelines for creating applications for smartphones and tablets as well as desktop applications and websites. Following these guidelines means that the application behaves in a way that users are accustomed to as most popular applications follow these guidelines. This means that the users do not have to spend time learning how to navigate the application. This is an important aspect of creating a positive user experience since the users can start using the application immediately without first spending time getting accustomed to the navigation and User Interface (UI). Since the guidelines have been tested and verified in countless applications before it is a reliable way to avoid creating a negative user experience.

4.5.2 Low-fidelity prototyping

Starting the prototyping process, we decided to start spinning ideas on paper to get a better grip of how we would like to visualise the application. Paper prototyping offers some lucrative advantages compared to other prototyping methods, the most obvious being that it is a quick way of visualising ideas and concepts to make it easier to convey ideas to other members of the team. The fact that the sketches are quick to make also means that the designer does not get as attached to an idea compared to one that has taken several hours or days to visualise. This promotes

iterative work and allows the designer to explore many different ideas and improving them before deciding which concept to pursue. One of the biggest drawbacks with paper prototyping and low-fidelity prototypes in general is that it can be hard to envision the result as the sketches are lacking in detail.

The initial design work was carried out with both of us working on our own separate designs by doing simple sketches using pen and paper. This had several advantages that made up for the extra time consumed in taking this approach. It enabled us to understand our own vision of the application and see the strengths and shortcomings of our own ideas. These first sketches were then used as a means of communication between the two of us making it easy to convey our ideas and to discuss them. This led us to see how aspects of one design could be integrated into the other design instead, making it more viable. The discussions that arose also made us consider other approaches to specific parts of the design that turned out to be better than any of the original ideas. The process of combining the two designs into one was straight forward as they shared many similarities. This was likely since we had both been studying the same set of applications to find inspiration and common practices.

4.5.3   Bottom Navigation Vs. Navigation Drawer

Following the material design guidelines does not mean that the designer can use a predefined design but rather that there is a vast collection of different designs and methods. We had an interesting discussion regarding the navigation of the application. We were divided regarding the use of *Bottom Navigation* or using a *Navigation Drawer*. Using the Navigation drawer leaves more screen space for the user to see the content as well as it can display a preview of the profile and give the user a glance over the entire menu. Arguments for using the navigation drawer was to save screen space and forward thinking aspects, as the menu can keep growing without problems unlike with the bottom navigation bar.
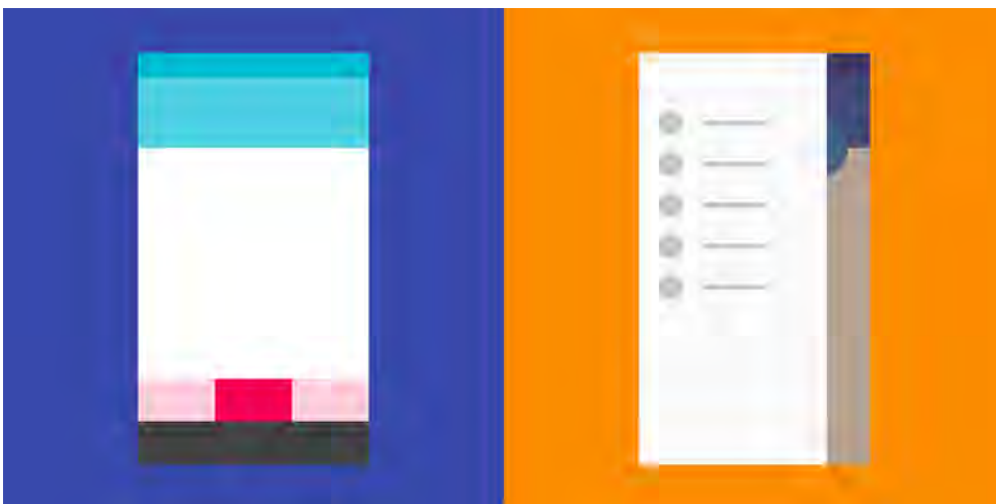

Figure 4.6: Left: Bottom Navigation; Right: Navigation Drawer; Images from the Material Design guidelines

The arguments for the bottom navigation was that the menu is always present, which

gives the user a clear indication of where in the application he or she currently is. As well as giving the user access to all top levels of the application from anywhere. The downside with the bottom navigation is that it must have at least three top level views to a maximum of five. Having more than five means that the menu should be replaced, inconveniencing the users to adapt to a new menu.

We concluded to use the bottom navigation bar in the design as we were only going to use three top level views which would make the navigation drawer look empty. The guidelines states, to use the navigation that is the best suited for your application, which in the case for the MVP means using the bottom navigation as there are very few views. If we were designing the application in its entirety with all IGDB's functionality, then the navigation drawer would make more sense.

4.5.4   What information to present

Designing all the informative screens made us think about what the users would like to see the most on the home screen. We were trying to limit the number of steps the user would need to take to reach the information they found most relevant. For this we asked the people at the office for their personal view on this question as well looking at IGDB's analytics for advice on what people do on the game pages. The users that visits the game pages do not stay long for the information, but to consume the media that is available. They spend their time looking at videos, images, and the feed anything that they could consume with little effort. We thus decided to make sure that this type of content was easily accessible and not cluttered with uninteresting things.

4.5.5   Medium-fidelity prototyping

The sketches created using pen and paper were a good starting point to come up with a basic layout for the application but it was very hard to assess how much space individual components would occupy for them to be easy to read or see. In order to progress the design, we instead used digital sketches to get a better understanding of whether or not the initial design concepts were feasible. The tools used for this was Adobe Photoshop and Adobe Illustrator. Adobe Illustrator was especially suitable to use at this stage as it enabled us to use a modular design making it quick and easy to make changes and to reuse components in other parts of the design. These digital sketches were also necessary to start experimenting with colour to find a suitable colour scheme for the application. The advantage of using a digital design is that it is easier to simulate relative size of objects. We found that presenting a digital design to the team gave us a better response and feedback as it is easier for them as well to envision what the end-product might look like.

The design of the first digital prototype had three top level views which could take the user to Discover view, Feed view, and Profile view, see figure 4.7. To visualise these designs, we created twelve digital images to be used in a presentation to the rest of the team for feedback. The primary way to navigate through this application is by using the *Bottom Navigation Bar* which links the top three top level views for quick access. In the *Application Bar* at the top we only display the view name,

a search icon and a feedback icon for quick and easy access. The first top level view is called the *Discover* view and displays the most popular games on IGDB in a *GridLayout*. The second top view is the social feed which is made up of three parts; Following, Friends, and Discover. These parts are divided in *Tabs* to make it easy for the users to switch between these views. The Feed layout is a simple *List Layout* where every Feed item is displayed as a *Card*.
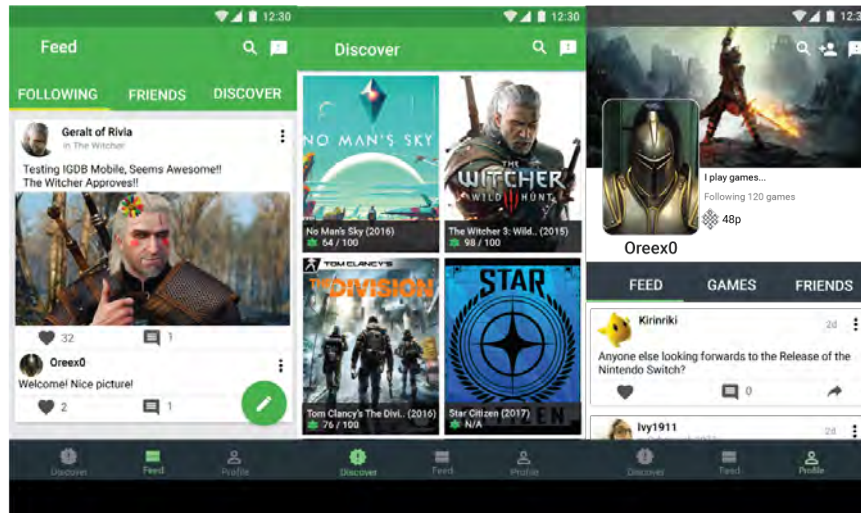
Figure 4.7: Design of Social feed, Discover view, and Profile view

Figure 4.7 displays what a card could look like. It should display the poster (the user), picture and name, the post, text and accompanying image or video, as well as how many users commented on the post and how many that 'liked' the post. To create a new post the users, must press the *floating action button* which is placed at the bottom right, which can be seen in figure 4.7. This design is similar to what other major social media applications offer and keeping things familiar, enhancing the user experience. The third top level view is the user profile page, this page also has three views that are divided by tabs. The views are the User Specific Feed, which displays all the user's feed items, The Games view, the user's game lists, and the Friends view, list of friends. The top of the profile view displays the user's chosen pictures, user bio, number of followed games, as well as their Karma points. To add a new friend, we experimented with using the *Person Add* icon in the Application Bar.

The *Game Page* view is very similar to the profile view to keep a general consistency in the application as well as keep it close to the website. We thought that it would be important to see the ratings from both users and metascore. The company is investing in their social feed and want to drive users to follow games so we added a prominent call to action button (Follow game) beneath the cover art. Underneath the button we have the three tabs: Media, About, Similar Games. Media was placed as the default one as most of the users just want to consume media so we made it easily accessible.

The *about view* is quite simple, displaying game information plainly. We planned on using some of the android animations that collapse the top part of the view into the application bar, as can be seen in figure 4.8. In the about view there is a floating
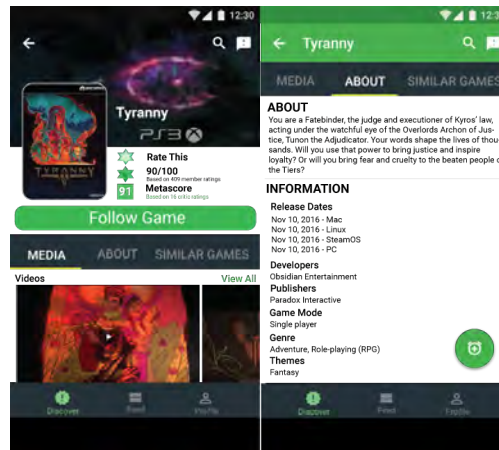
Figure 4.8: Design prototype of Game page

action button that is supposed to convey: set an alarm for the release of the game in question with an push notification. The last view is the similar games which displays a list of similar games with their name, platform, genre, and rating.

The last image that we created was the search windows to explain how we envisioned the search functionality. The search should look like a typical Google search where the entire application bar converts into search mode. The search items should display the game image, title, year, and genre.
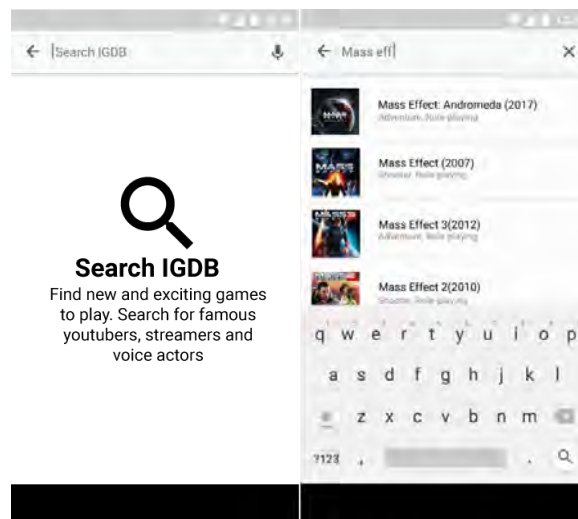
Figure 4.9: Design prototype of the Search view

4.6 Second iteration of design

We finished the first iteration of the design with a *Design Review* with the entire team. Their overall impression was that it was a good first design iteration and that the focus should be on log-in and user registration, as well as a redesign of the profile and game pages which should focus more on social aspects, follow games and add friends. After the review, we had a meeting with the team's lead designer to go

through our thoughts of the design and direction of the company. As the company wants to focus more on the social aspects of gaming than just being a database, we would need to change our design thinking to have the social aspects in mind during the second iteration.

4.6.1   High-fidelity prototype

The second iteration of the prototype was supposed to be an interactive prototype that we could send out to the users for additional feedback. We started working with a prototyping tool called *Axure*[6] which we thought could work similar to Google Docs, allowing us to work together when producing the prototype. We quickly decided to abandon the software as it did not work as we expected and the time it would take to learn this new software would take too long. The software we used instead is called *JustInMind*[29] that we have had some previous experience with. The collaborative aspects are not the same as JustInMind uses a version control approach to the collaboration similar to what is used for programming. That means that users can work on different parts of the same project and commit their changes which merges the work of all contributors. Each new commit or save is a new version of the prototype.

JustInMind is a powerful prototyping tool that has a lot of finished components for Android, iOS, and Windows. Combining this with good images from *Adobe Illustrator* of the second iteration prototype turned out to be as close to the real thing as possible. We initially planned on creating an Interactive PDF for the users but JustInMind does not create an interactive PDF, but instead creates interactive HTML which can be viewed in the browser. This makes it easier for the users to view and test the prototype as well. To view an interactive PDF the users, need to have a PDF reader, which they might not have, while to use HTML they just need to use their web browser, any web browser, to view and test the design. As the users only need their web browsers it is possible to test the prototype on a smartphone, the intended platform for the final product. JustInMind gives the designer access to multiple types of interactive input which can be used to change the layout of the prototype or decide what content is being displayed. These inputs are; On click, On gesture, Keyboard, Page load/unload, scroll, variable change, and on window re-size. Using these inputs, we managed to create a prototype that looks and behaves as close to an android application as possible, although limited in the sense that it is only possible to view information about one game and no matter what the user enters in the search field it will always bring up the same search results. Creating an interactive prototype is easy with JustInMind, but it is a time consuming process.

The second iteration of the design we changed three of the views; Discover, Profile, and the Game pages. The Discover view, left image of figure 4.10, changed from a grid layout that only displays the most popular games to a card layout divided into three categories; Popular games, Coming soon, and New Releases. Each section is a horizontally scrollable list with cards as a preview with the option to display all the cards by pressing the *MORE* link. Pressing one of these cards will open the Game page for that game.

IGDB strives to become a social community for gamers, hence it is a good idea
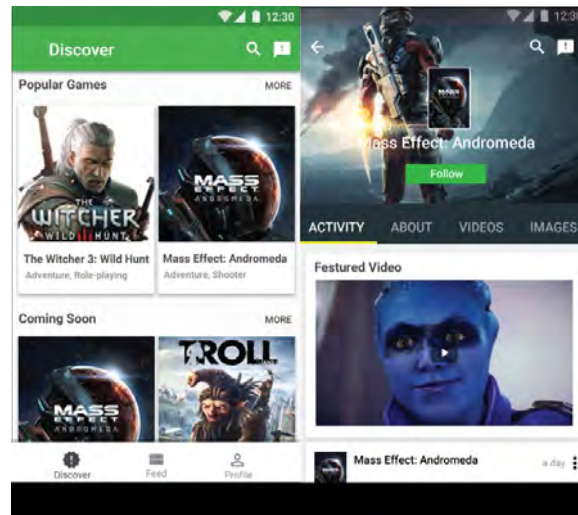
Figure 4.10: Design prototype of the second iteration Discover view and Game page

to look at similar applications (Facebook, Google+, and Twitter) for inspiration. Other social community applications keep their "pages" clean with only a few items at the top; Cover image, Profile image, name, bio, follow and add friend button respectively. The new game pages focus less on the informative data, ratings, genre, platform etc. instead it is kept simplistic, like other social applications, by only displaying the game name and the follow button. The Similar Games tab has been removed as it was deemed unnecessary, it is rarely used on the website according to analytics. The *Media* tab is replaced with two tabs, *Videos*, and *Images*. The Videos tab displays the videos in a list, like *YouTube* while the images are shown in a grid list.
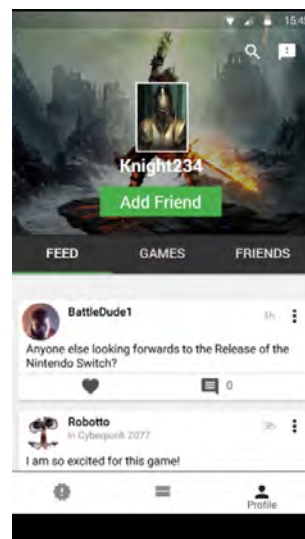
Figure 4.11: Design prototype of the second iteration profile page

The design of the game pages is consistent with the design of the user profiles. The profiles have been simplified with only showing the cover image, profile image, user

name, and the add friend button. 'Hiding' the add friend button in the application bar goes against the overall goal, which is to create a new social platform for gamers. Displaying the button in the same way as the game pages will drive people to use it more.

4.6.2 Prepare User Testing

When we performed our initial user survey we asked the respondents if they would like to offer additional help later in the design process. If they were willing to help out more they were asked to leave their email address so that we would be able to contact them directly. We used this list to distribute the interactive prototype to get more feedback and to make sure that our design had not strayed from what we intended to create. Part of this process was to go through all of the email addresses left by the respondents to sort out false or faulty addresses that we could not send out the prototype to. Another part of this process was to prepare a set of unsupervised tasks meant to ensure that the users see every part of the prototype so that they are able to leave useful feedback based on the entire design. An example of these tasks was "go to the game Mass Effect: Andromeda". The tasks were intentionally made somewhat ambiguous as it is possible to get to this location in two ways; either by clicking on the appropriate icon in the discover screen or by going via the search feature. These tasks were also complemented with a few questions on more specific topics where we wanted to have our design verified. An example of this is the icons used in the Bottom navigation bar, it is very important that it is easy for the user to distinguish between the different icons and to remember the purpose of each icon. This user test revealed that the design was pleasing, the only issues that we received was the lack of information or the order of how the information if presented. This led to the third and last iteration of the design before development.

4.7 Third Iteration of the Design

The third iteration of the application was inspired by the answers we received from the users that wanted to test the Interactive prototype and give us their feedback. The Interactive prototype was sent out to 64 people from which we received five answers. Their comments are summarised below:

- **Game pages**

  - Missing Similar games (Related Games)
  - In the about tab place developer publisher, genre, etc before the description.
  - The ability to rate games as well as see the scores (Game rankings)

- **Discover page**

  - The discovery page only displays two games from the categories, make it scroll horizontally for a bigger preview.

– Add Recommended games for you.

– Add Highest ranked games.

- **Profile**

  – The profile page does not look good.

- **Extra**

  – Add the news aggregator, let me read the latest news.

After sorting through these comments we knew that we were almost there, fixing these small issues would be the last bit of design work before we start implementing the application. The third iteration of the prototype gave the game pages and the profile pages a new, more stylistically pure look compared to the previous designs. The problem with the previous design was that there were a lot of components on the cover image which made it difficult to see both the profile image and the name. By shrinking the cover image and move the components down into the white area, everything became a lot clearer and we believe that the page looks better. The game pages received more new features such as adding the Similar Games tab and converting the Fixed Tabs into scrollable Tabs. The content in the about tab has also been redesigned according to the users wishes by reordering the information as well as adding Expansion Panels to hide irrelevant release dates and the storyline. The panels are sorted according to platform and displays all of the release dates for that platform for each region.
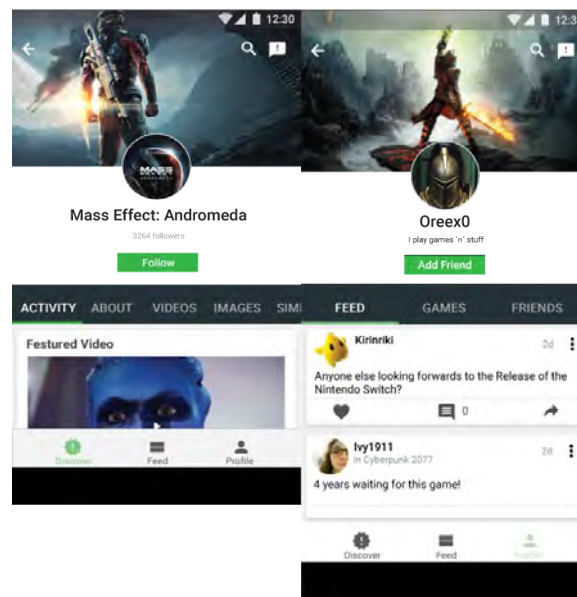

Figure 4.12: The new design of Game page and the Profile page

4.8 Implementation

After three iterations of prototyping and user testing the design was refined enough to move on to implementation. With a finished design as a blueprint the implementation part of the project could start.

4.8.1 Code planning and preperations

To ensure that the implementation of the application progressed smoothly our first course of action was to specify how the code base would be structured. The purpose of this was to predict and avoid difficulties that could arise before we encounter them. If it is possible to predict problems before they arise it becomes possible to change the code structure while it is on a conceptual level and more flexible than if a large amount of code that is already in place.

To establish a specification of the overarching code architecture we used Unified Modelling Language most often referred to by its abbreviation UML. Which is a way of visualising how the code in a project will be structured. The Oxford dictionary of computer science describes UML as "A graphical language for the specification, documentation, and visualisation of the designs of object-oriented software systems"[5]. The UML diagram we created, see Appendix C, was a class diagram describing the various classes that will be part of the code, what variables and methods they will contain as well as how they relate to and interact with each other.

By creating this before the implementation starts we hope to be able to identify problems before they arise and come up with a structure that solves them without having to making large scale changes to the code in the middle of the implementation phase which will be time consuming.

4.8.2 Creating the API wrapper

IGDB's API is accessed through a service called Mashape[31] which is an API gateway. This service handles the security and gives the company a way of seeing how many are using their API as well as handling payments for the premium versions. The IGDB API is quite popular as they have, at the time of writing this over 2000 projects, that are using the API. Mashape manages these connections to the API. To access and use IGDBs database we need a Mashape key for access. Once the key has been generated we were ready to get started. Mashape can also handle API documentation but IGDB choose to create their own documentation to give better examples as well as making the documentation easier to access.

To access information from the servers we had to write *HTTP GET* queries which retrieves the information we need in the form of a *JSON Array*. We built a JSON Array wrapper around the API to receive JSON Arrays of information in our backend to later be transformed into game objects which are then presented to the user. Working with networks and servers meant that our request needed to be in the form of *AsyncTasks* which means that the program does not stop and wait for the response but handles the response in the background while doing other things such as preparing the UI. The problem that we faced while working with their API was

to sync the data properly with the server and UI. The visual problems were that the information would arrive with a slight but visible delay. Some text would be visible while other would not. The technical problem was that the data from the server comes with an inconsistent delay, it can arrive at any moment, which meant in our case that we tried to access certain information before it arrived. This would lead the application to crash with either a *null pointer exception* or *index out of bounds exception*, which means that there is missing information. To solve these problems, we had to implement callback methods which we activate on server response. When the server returns the data, we have requested it activates a callback method through our custom interface which then runs the rest of the code. We used those methods to fill our game lists and display the data to the user. This was constantly a problem as working asynchronously was new to us as we struggled through and managed to implement a fully functional API wrapper that receives a query and returns the corresponding *JSON Object*. To hide this delay, we implemented a splash screen which is only visible during the first API request which loads the first three lists; Popular Games, New Releases, and Coming Soon. The time for the splash screen then varies as the requests time does but it is not a noticeable delay.

The Discover View was intended to be the Main starting point of the application which is meant to capture the user's attention by displaying three interesting lists; Popular Games, New Releases, and Coming Soon.
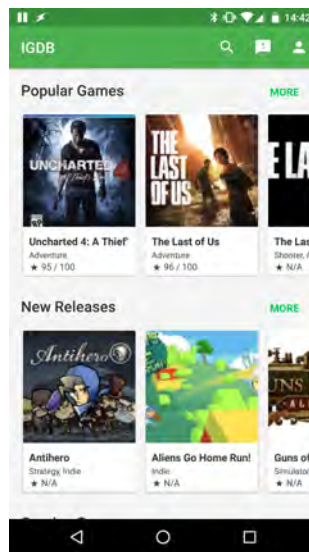
Figure 4.13: In-App: Screenshot of the Discover view of the application

This activity is built up of three horizontal scrollers which are populated with Google's Card views to present games. The scrollers display a maximum of ten games to scroll through where each card displays the game cover, name, genre and the overall score. To display cards in this way we created our own custom *RecyclerView* adapter that takes each list of games and displays these lists as cards. The benefits with using a RecyclerView instead of the regular *ListView* is that it reuses the visible cells which makes it use less memory and is thus called RecyclerView. To view more games from one of the lists the user can press on the green *MORE* link in the top right above the scrollbars to view the top thirty games in that category.

The first plan was to create 'eternally' scrollable lists here but was discarded as a later feature if it would be requested by the users as we did not see the benefit. The *MORE* View also displays cards to keep it consistent but in another way. Where discover view had horizontal scrollers the *MORE* view displays the information in a vertical scrollable grid to let the users get a better overview of the content.

4.8.3 Databinding

Our early problem of synchronising data with the API continued to frustrate us and caused many problems in form of bugs in the application. This was also true for the UI part where cards would not be visible until refreshed through a callback method. Discussing this problem with our technical supervisor at the company he proposed that we should consider databinding and see if Android supported this, which it did. Android released their own version of databinding in 2015[11] which was created to simplify the UI implementation as well as better connect the UI with the data. Android's Data Binding makes the visual elements of the UI observe their assigned variables for changes. This means that when there is new data to be shown the UI would automatically update the information on its own. This was just the thing we needed to not only simplify the UI design but also fix several bugs caused by callbacks. Data Binding can also call other methods to run on a variable change which means that we could run the method for downloading and setting images as soon as the image URL was available without going through an callback and then download the images. We chose to create the rest of the application following this same model to minimise the risks with callbacks.

4.8.4 Game Pages

The game pages are supposed to collapse the entire top part of the screen to better display the rest of the content underneath.
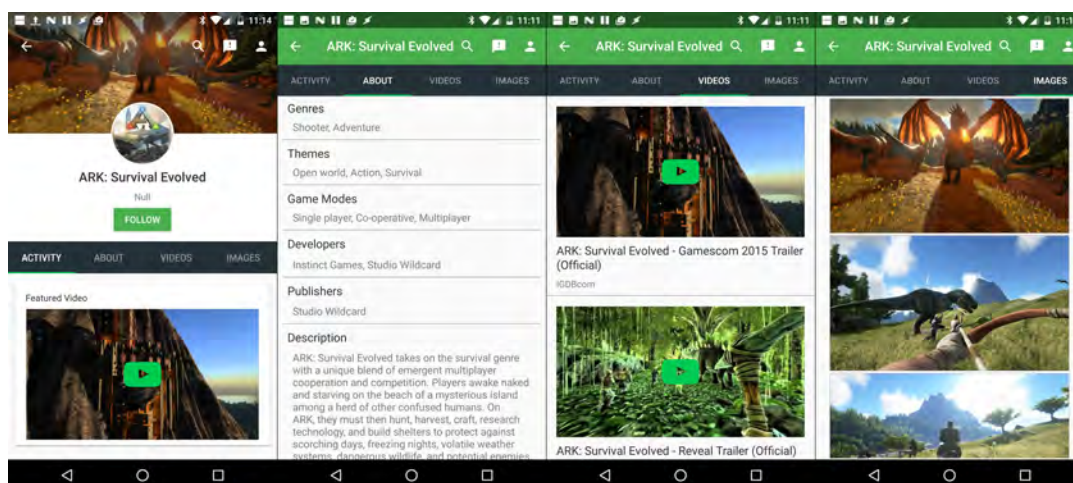

Figure 4.14: In-App: All Game Page views from the application

This is called a *Collapsing Toolbar* as the toolbar is expanded at start and can collapse into a regular toolbar with a simple fade animation. The implementation

of this was challenging and took several attempts to understand how components need to be placed gain the desired functionality. When collapsing the toolbar, the components can be set to move or disappear at different speeds gaining a parallax effect. The background image in the toolbar is set at a lower parallax value which mean that it will move slower than the rest when collapsing the toolbar. The circle *Cover Image* is set at the same parallax depth as the layout beneath it to sync their collapse speed. Parallax depth decides how fast the object moves, the further 'down' the object the slower it will move, see the application at Google Play Store[38] . Once the Collapsing toolbar was finished and working we added the tabs underneath with four different fragments with information.

The Activity fragment is supposed to display a featured video of the game, which is basically the first video in the games video list, and then the rest of the games social feed. The feed does not show in figure 4.14 as the API did not support this at that time. The Featured videos purpose is to capture the user's attention for the game and entice them to continue scrolling through the feed to find other entertaining pictures, videos or text.

The About fragment displays all the game information in a simple informative *Linearlayout*. This layout stacks the information which is the usual approach of displaying information, which people are used to. We believe that this will make it easier for the users to find the information that they are interested in. We had to implement this view in two parts, a *Linearlayout* at the top to display recurring information and a *ListView* at the bottom. The *listviews* purpose is to display the release dates which can vary in number, regions and platforms.

The Video fragment displays all the relevant videos of the game. To get the relevant information we set up a YouTube API account to get access to YouTube content. This is very similar to how Mashape does it, we need an approved API key to access the content from YouTube. Through this API we can get the Thumbnails, Titles, and Uploader of the videos to display to the user. On Top of the thumbnails we also placed the YouTube logo as a link that will open the video in the users YouTube application. This will give the users the pliancy that pressing the icon, which happens to be shaped as a play button, will start the video. The video items are placed in a list, similar to the YouTube apps layout which we believe will make it easier for them to interact with.

The last fragment is the images fragment which was planned as a grid view but changed to a list, similar to the videos fragment as the images scaled quite badly. The result was much better overall as the images became larger and more clear.

In the designs for the third iteration we planned to have a fifth tab labelled 'Recommended games'. This was removed from the designs as there was no way for us to receive this information from the API. This functionality does not exist on the website itself and thus we cannot use it in the application.

4.8.5   Loading images from URLs

To load the images from the web to the device we used *Picasso*[34]. Picasso is a library for android development that allows the developers to easily and efficiently download and display images within the application. Picasso also handles caching

of these images, eliminating the need to download the same image multiple times in the same session, or even between sessions. This results in a much quicker and more responsive user experience where the time the user spends waiting for the application to load content is reduced significantly. With this library, the need to create our own image loader would be a waste of our time as it would not be as good as this finished, much used, and tested library.

4.8.6   Search

Search is a big part of an online database for the information hungry. To search for games within the application was an important function. Creating a *Searchview* in android is quite simple with the help of their developer examples. When the user presses the search button it automatically expands the search input in the toolbar. Searching for a game triggers a search query to the API which returns a list of games which we display to the user in another view called the SearchView. When the searchview activity starts, we change the application theme to white which is similar to how Google does it to make it clear that they have entered the search view. Adding Voice search was easier than expected as Google has prepared everything, all the developer needs to do is to add one line of code and voice search is integrated with the application. Voice search is a simple addition to the searchview to let the user say what they are looking for instead of typing it.

4.8.7   Caching

The purpose of caching is to store data that is accessed frequently so that the application consumes less time and other resources on fetching this data. This means that the users experience shorter loading times in the application and the servers hosting the data can handle a significantly larger number of users simultaneously. In android applications, there are three primary ways of storing data locally on the phone and another two ways of storing data remotely.

- **Shared Preferences** are used to save key-value pairs of primitive types such as ints, Strings and booleans. This data persists between sessions meaning that the application can be fully closed without losing the data.

- **Internal Storage** saves data as a file on the phone's local memory, these files are private meaning that only the application that created them has access to them, they are also inaccessible for the user. The files are removed together with the application in the case of it being uninstalled. This is the storage option being used in this project. A *FileOutputStream* is used to write the data to the memory, we are combining this with a *ObjectOutputStream* to be able to save Java objects in the phone's memory.

- **External Storage** is a lot like Internal storage but the files saved are visible and accessible to all applications and to the user.

- **SQLite Database** android supports using SQLite databases to store data, this data is accessible from any part of the application but is not accessible from any context outside of the application.

- **Network Connection** it is of course also possible to store data on other remote databases than SQLite but android does not provide any specialised tools for it in the same way as for SQLite.

Caching is one of way of improving the user experience of the application as it provides a smoother more responsive experience.

4.9   Pivot

Half way through the development process we had completed the first stage of the application. The Discover view was completed and set as the start page with search functionality and game pages offering users specific information about each game with videos and screenshots. The next step was to start developing the second stage of the application, adding log-in, registration and the social feed. However, during that week, we had a discussion with the company which lead to changing the focus of the application, moving away from the social feed to be more informative. This change is referred to as pivoting which is described in the book: The Lean Start-up by Eric Ries[36]. The Lean Start-up describes pivoting as "structured course correction designed to test a new fundamental hypothesis about the product, strategy, and engine of growth". This concept means that the direction of the design should change to test out a new hypothesis that might be better than the last one. This is used in cases when the current hypothesis has been proven wrong or the concept does not gain traction at a sufficient pace.

The reason behind this pivot comes from IGDB's work with data analytics, they have embraced *Data driven* development which means that IGDB's analytics plays a big part of the company's decision making. Every new feature or new design is thoroughly tested and validated with analytics which can show the users behaviours though the new change. The new Social feed was implemented and deployed to the website roughly a month before we started working on this thesis. It was a new direction for the company that wanted to test if they could reach out to more user with the use of social interactions in their own social feed. This has been continuously monitored and tested before, and during our time at the company.

During these weeks of app development, the company decided to focus less on the social feed as it did not reach satisfactory retention levels. This called for a quick decision to shift their focus from the social to something else.

Throughout the entire thesis we have been working closely with the rest of the company, even more so after we started implementing the application. During the implementation, we developed new features in the application that were not available through the API beforehand. This meant that the company had to expand the functionality of their API. To ensure that it was easy for us to communicate with the company and vice versa during this stage we integrated fully into their preferred Agile development process, Scrum. Working with Scrum we shared the same scrum

board with a different backlog, one for IGDB.com and one for the application. This would ensure total transparency of all current projects that are being developed, meaning that everybody in the company was aware of what we were working on and what problems we were facing. This was a good decision as it was much easier to ask for help since everybody knew what we were working on.

When discussing the social feed and the application we could quickly decide what the best option for the application would be, and if there is time enough to implement it.

The scope of the old application concept was too broad as it was intended to cover most of the functionality offered on the website, while we only designed a small part. After our discussion with the company the idea changed from creating one large application to create several small applications, each with a more narrow and specialised scope. With this in mind we set the scope of our application to display news from the gaming world on a lightweight and compact application where the users are able to personalise their experience by selecting what sort of news they will see.

The Agile development process allowed us to change direction and create a better application in the end, instead of finishing the old design and then finding out that the application does not perform as well as we would have hoped. The benefits of working in an Agile way is to be able to quickly make new decisions.

The design concept for the application changed from 'searching for information about games with a social feed' to a simple game news application. The reasons for this change are that the social feed did not perform as the company expected and that the old application concept was too broad. The old design focused on too many things and was still to broad despite trying to narrow it down. The new concept is more clean than the old and is only focusing on one feature, the news aggregator. IGDB had an old news aggregator on the website which they have started renewing, adding more sources which will aggregate more news to the website. The idea with the new application was to have all the news that the user cares about in one place with quick and easy access. We could even connect each article with a game, thanks to the database and the views that we have already made, helping the user quickly look up information about the game that the article is about. Modifying the already existing game pages to show all related news about the game instead of its social feed was simple. The game news application should not give all news to the user, but it should be customised per the user's preferences. Onboarding plays a big part in this application letting the users decide what kind of news they are interested in to give them a better experience by only showing news that they are interested in.

Comparing these two application concepts we believe that the new concept is more clear in its purpose. What we have learned together with the company is that mobile applications benefits from trying to solve one specific problem for a specified user base. If an application tries to solve multiple problems for several user groups, it could become a UX nightmare where the user is not able to use the application to solve his or her specific problem. The old concept tried to focus equally on two aspects, two user groups, of IGDB based on our previous questionnaire: 1. Search for information about games 2. IGDB Social Feed. These aspects needed much space and focus and they were not strongly connected to each other. If we would

have finished stage two or even stage three, then we would have three features of
the IGDB website in the application making less of an MVP for one feature and
more into a cluttered application with different features. This new concept has one
focus, Game news, with the search and game information adding extra value to the
application by making it possible for the user to "Follow" games they want to see
news about. This concept is easier to understand in what it is supposed to do and
will likely make it easier for the users to understand what the application is for.

4.9.1   New Application Design

The decision to pivot came at the most opportune moment of the development phase
as more or less everything we had implemented so far would still be usable in the new
application concept. The most notable exception to this is the discover view that has
been described previously in section 4.8.2. This view was intended to help the users
of the application find new games that they would find interesting and perhaps want
to play. However, in the new concept this only diluted the application by increasing
the number of screens the users can navigate through, increasing the application's
complexity without adding any value to the news focus of the application. It was
therefore not included in the new concept.
The new concept shares a lot of similarities with the old concept. The old concept
has been tested with users of the website and approved. With this new concept
coming in the last two weeks of development we had no more time to invest in user
testing. This meant that the best way to redesign this new concept by using the
old tested concept as a baseline for the new design. The new feed focusing on news
shares a lot of similarities with the old social feed. The major differences are the
designs of the cards which changes from displaying user generated content that the
user is supposed to interact with, write replies, to only display information was not
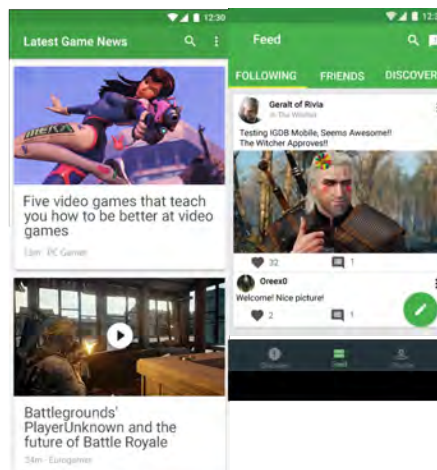a difficult task.

Figure 4.15: This image display's the old design of the Social feed (Right) and the
new design of the news feed (Left)

Figure 4.15 displays the new concept design of the main view next to the left and
the old social feed to the right. In both concepts the feed displays the information

in the form of cards. The main difference is that the old concept was supposed to have comments as a part of each feed element. This is no longer necessary in the new concept. The new concept revolves around customising of the news articles which means that for the application to know the user's preferences we would need to create an onboarding process.
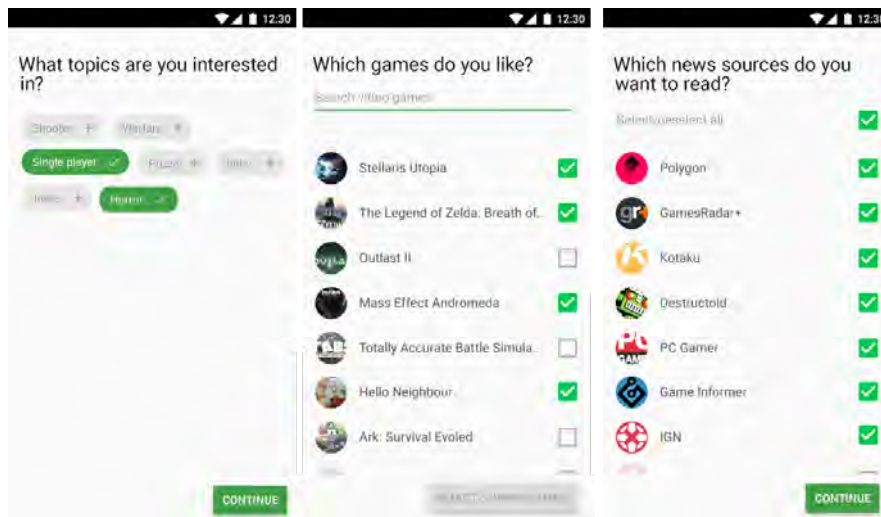

Figure 4.16: This image display's the onboarding process of the new concept which goes through Topics, Games, and Sources

The onboarding process was developed to filter out content that the user found uninteresting. We started by letting the user choose topics that he or she finds interesting, from this decision we display the most popular games containing the same topic. The last step is mostly a presentation of all the sources that the application receives news from. We decided to let these sources be checked by default to simplify the user's actions. The reason for this was because a quick test with people from the office where they all said that they would probably keep all the sources, the more sources active the more interesting news. The view for the articles should be as simple as possible to not draw away the user attention from the article. The layout we decided to go with was to add the image at the top, if there is an image, followed by the title, subtitle (time posted, author, and source), and the text content of the article. We were still unclear of how we would like to link to the real website for the article, in case the user wishes to see it.

In figure 4.17 we placed two links to the web-page, one in the App bar and one underneath the content stating "*Read more on PC gamer*". In the end, we decided to remove the icon in the app bar to save space for other functionality such as following games and hiding uninteresting content. At the bottom, we placed 'tags' to the article in the form of *chips*. We believed that it could be interesting for the user to find more information about the article's subject, the game, or just more articles from the same source.
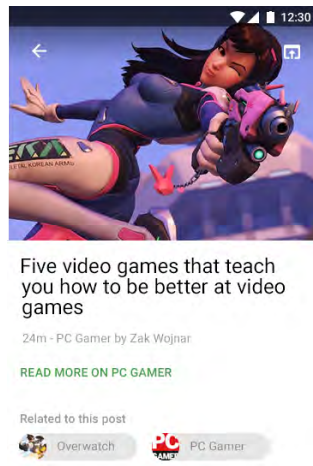
Figure 4.17: This image display's the new concept's article pages, without the text content

4.10 Deploying to Google Play Store

The first version of the application that we released to the public, henceforth called version 1.01, was complete and functional with the views that we decided upon. The applications first start-up displayed the onboarding. Letting the user decide what topics that are interesting, the next step displayed the most popular games at IGDB that the user could quickly follow. The last step displayed all of the available sources, pre-selected. Finishing the onboarding displays a new view with a spinning progress bar with the text: "Loading your content", to hide the setup of the content as well as indicate that the content is being loaded. Once finished the application reveals the customised news feed. The News feed menu displayed the options of searching for games, sending feedback, and personalise. Personalise would mean to go back to the onboarding and edit the user's previous choices. The first version of the application displayed the articles in cards with the image, title, post time, the source, and a menu option.

Figure 4.18: An example of a card as they are seen in the feed, next to it is the menu that appears when pressing the 'more' icon button, three vertical dots at the bottom right

The bar over the title is only shown on the main feed as an explanation to why this article is recommended. The menu options show a menu Pop-up with options to; Follow/Unfollow game, hide game from the feed, and remove the source from the feed. This gives the user quick customisation options to make sure that the user only gets the articles that are most important. Opening a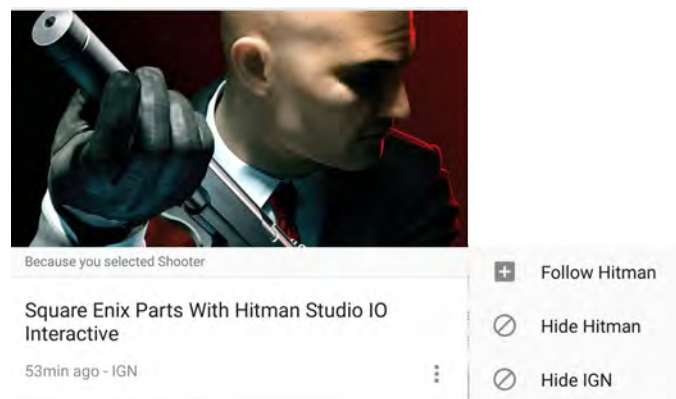n article will take the user to another view displaying the article in its entirety. The layout of the article can be seen in figure 4.19, it displays the options at the top; go back, share and more options. The more options open another menu Pop-up displaying the same options as on the card with one added option, feedback. Both feedback and share opens the Android standard application chooser. The difference is that the feedback explicitly states, "Choose Email app" as the only way to reach the developers is by mail.
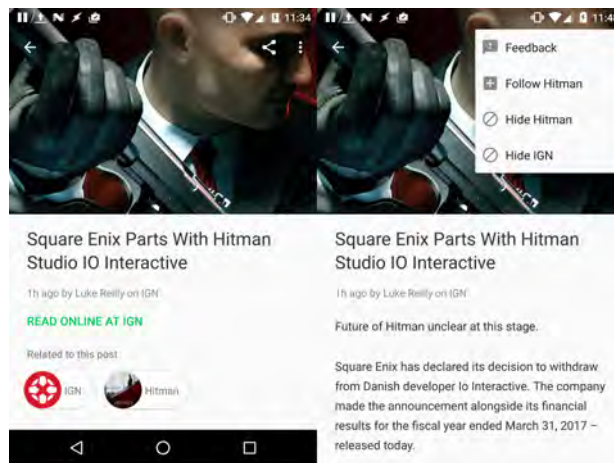
Figure 4.19: To the left, the article page without the article text. And to the right the same view with the text and the top right more button expanded.

Below the menu lays the rest of the article, the image, title, subtitle (time, author, and source), and the contents. Below the contents of the article there is a link to the article site which opens an in-app browser. Below the link are chips displaying related information such as the source and connected game. Tapping on the source will redirect the user to a source specific feed, displaying all news from that source, pressing on the game will open the connected game page.

Version 1.01, and the following versions, were tested using *Firebase[12] test lab*. The tests were simple robot test where the robot, software, tries to press every possible thing in the application to find crashes. Only when the application passes does it get uploaded. The problems with using robo tests is that it does not test everything and can easily miss things. These tests only find the most obvious problems. After Version 1.01 was released as an Open Beta we noticed that not everything was working perfectly. Bugs in the application managed to not get caught by the robotic tests. Luckily, we quickly managed to release another update of the application the next day fixing these issues and even adding another feature.

The next version, named Version 1.02, came with less bugs and an added feature, bookmarking. Adding bookmarking created some noticeable changes by adding another menu icon on the article cards, in the article view menu, and on the main feed menu, see figure 4.20. The new bookmark icon is a Toggle button which changes

from 'empty' to 'full' if the article is bookmarked or not. However, the icon in the main feed is always set to full and open the bookmarks view which displays all the bookmarked articles.

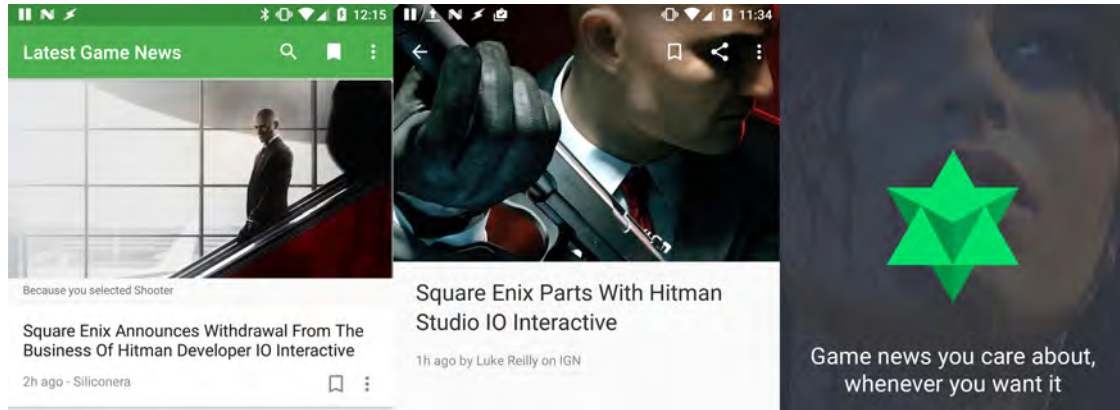**Figure 4.20:** Displays Bookmarking icons on the cards in the news feed, in the application bar, and in the Article view. Also displays the applications splash screen.

Another difference in this version were the changes made to the splash screen where the old one was simple, the logo with dark background, and the new one is an game image with the slogan: "Game news you care about, whenever you want it". The onboarding got a new screen that we thought was missing, the welcome screen. It is a simple screen that welcomes the user to the onboarding with one button, the 'Get Started' button. However this version was not perfect either as there were some bugs with the bookmarking that was overlooked which was solved in the third version.

We hoped that Version 1.03 would be the final update to the application before we had to stop developing. Version 1.03 brought nothing new to the application except for major bug fixes that solved most of the problems users found in Version 1.02. This version also received a new Mashape key that was bound to the application so that IGDB can keep track of how much data the application uses, number of requests per hour. This however, also made the older versions of the application unusable as the previous Mashape key was deactivated.

Version 1.04 became out most stable version as we managed to solve the rest of the recurring problems with the help of Firebase analytics that logs every crash and saves the stack trace. This meant that we could see what caused the problem and which versions that were affected. This update came approximately one week after the last release, Version 1.03. This update added new analytics features, Facebook Analytics was added to better keep track of what the users are doing on the application. Facebook Analytics is older and has more features that Google's new Firebase analytics. The last change was a name change as the application name before was "IGDB" which made little sense for the news application. The new name is simply "Game news" with the same IGDB logo.

5

Results

In this chapter we will go through the results of the user research and the final Android prototype that was deployed and describe all of its functions, views, and the navigational flow.

5.1 User Research - Questionnaire

The questionnaire that we released on IGDB.com was created using *Hotjar*. Hotjar is an analysis and feedback system that IGDB uses on their website. Their questionnaire tool was simple and easy to use but it was the way Hotjar could invite users to the questionnaire that made us decide to use it. Their pop-up invitation was time based were we decided to display the pop-up one second after the user reached the website, not giving the user enough time to start doing something more important. The resulting user survey reached 349 participants which was more than expected were the results were shown to the company in a presentation that is included in this report, see appendix B. The basis for the survey was to see what IGDB's users were doing on the website, what feature they were using, and what they would expect an IGDB mobile application to contain. This questionnaire was feature driven as we were tasked with creating a MVP mobile application for IGDB, meaning only one feature. To summarise the answers, we created charts to present our results and word clouds to present the most discussed topics from the open questions, an example from the presentation can be seen in figure 5.1.

Interesting findings from the survey was that the users mostly used mobile applications were social application, as seen in figure 5.1, the top three apps are *YouTube, Facebook*, and *Instagram*. The reason for the users to use IGDB is the database in general. The top three answers for visiting IGDB.com was; Finding information about a game, Discover new games to play, and organise games in lists. Similarly, to this the users answered that what they wanted in a IGDB mobile application was; Searching for games, getting game recommendations, and to organise their games in lists. Our questions about their social behaviour, how active are you on social media and how active would you be on a social media for games, gave similar results as we can see in figure 5.2.

What we can see here is that most of the users would rather just scroll through content while looking for something interesting to read. Our conclusion of the survey is that the user would most likely want an application that has the database search functionality so that they could quickly find information about games. This also proved that the users are quite social as they use a lot of social media applications
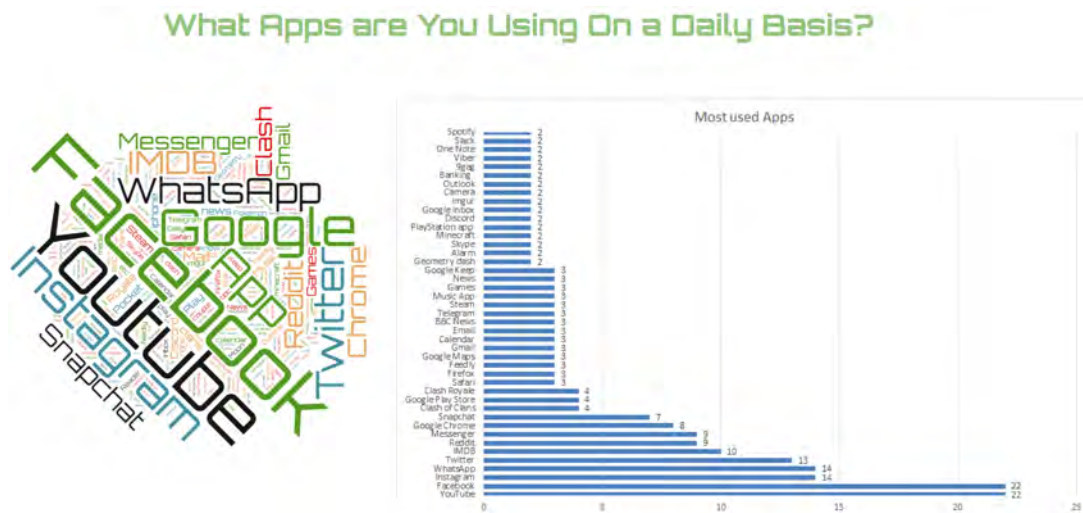
Figure 5.1: World cloud and chart of the users mostly used applications
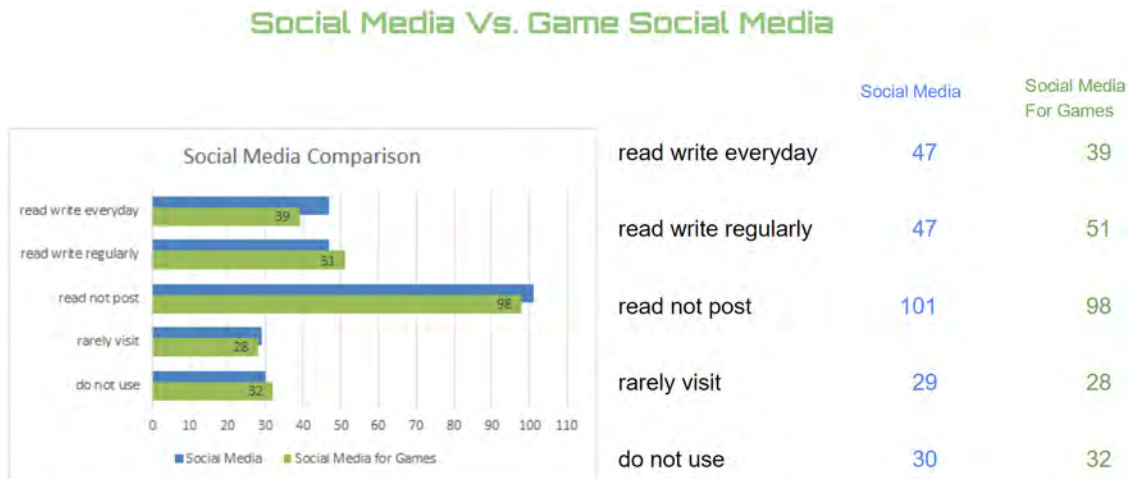
Figure 5.2: Chart comparing the users use of mainstream Social media vs social media for gamers, measured in number of answers

which would mean that they could appreciate an application that only handles gaming social media. The survey was made available for one week and during this time it had 349 respondents. During the same time the site had 47000 visitors which was treated as the population. Using the formula of sample size, seen in figure 3.1, it was possible to determine that the survey had a 5.23 % confidence interval at a confidence level of 95 % and a 50 % percentage value. This means that the answers that we received from the survey can accurately represent IGDB's current user group with a margin of error at plus/minus 5 %

5.2 Blue Ocean Analysis

The Blue Ocean analysis is a book that was proposed to us by the company to help us guide where we should place the application in terms of function and the current

competitors. The book is a market strategy guide to keep your products out of the suffocating red oceans and finding your way into a free blue ocean. We used a method described in this book called a Strategy Canvas to compare IGDB's two biggest competitors, which together contained all IGDB's feature set. The results of this Strategy canvas were that the competition is fierce and that the users are used to well-made applications such as Appy Gamer and Player.me. One special distinction where IGDB could invest more time than the others would be the gamification of their service. But remaking the Strategy canvas we can now see that the applications position has changed, we can even add another factor: Connected Games.
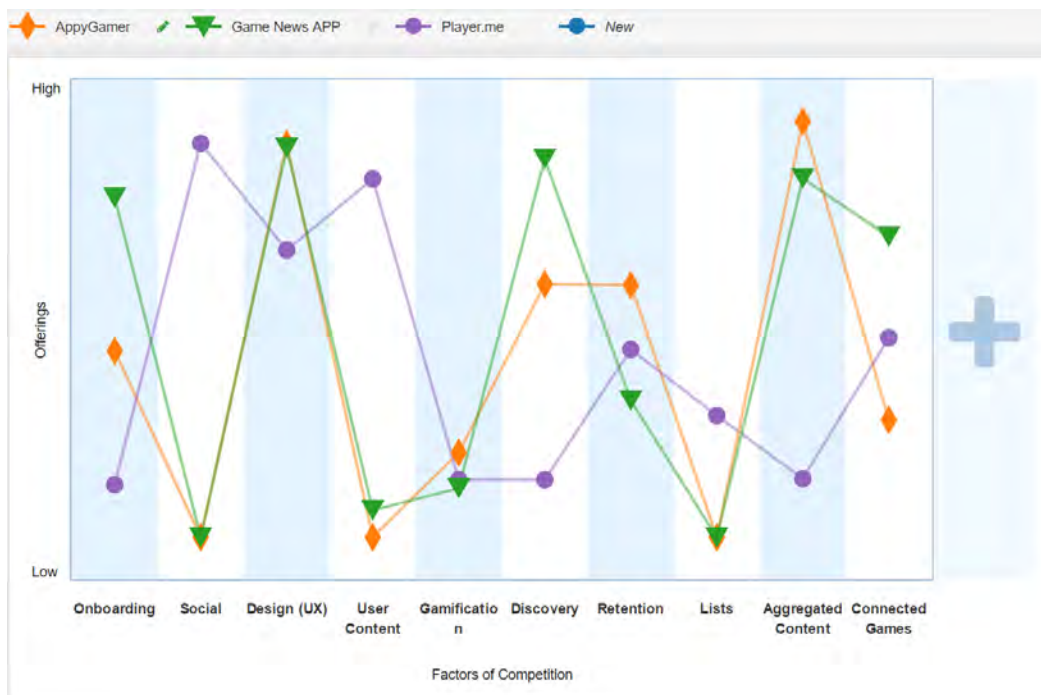
Figure 5.3: The new Strstegy Canvas with IGDB's Game news application

Looking at the application again and comparing it with the other apps we now have a new canvas. Our application now spikes in five positions; Onboarding, UX, Discovery, Aggregated Content, and Connected games. Looking back at the other apps, mostly Appy Gamer, they do not have an as personalised onboarding which means that they do not customise the news feed as well as we do for first time users. We believe that our method is superior as we only ask the user to specialise the application once while the others have several steps throughout the app. In terms of UX, all applications are using Material design in a good way except for Player.me were we feel their application feels a little bit cramped with their 'endless' scrollable tabs and many features.

Discovery is higher than the others because of our connection between news and games, users can read an article and instantly learn more about the game though its own game page. Aggregated Content is still rising, the first release of the application only had about 15 sources while the latest version has more than 30, still not as many as Appy Gamer but more sources are being added continuously. The new factor, connected games, added to the strategy canvas is a given to our application

because of the connected game pages. The other applications have something similar but without the information from the IGDB database.

5.3 Prototypes

During this project, we created prototypes in three iterations for the IGDB application before development. In this section, we present all the prototypes and their changes from previous iterations.

5.3.1 First iteration prototype

The result of the first prototype iteration can be seen in figure 5.4. This prototype visualises the IGDB application at stage 2, this includes the game pages, the search, the social feed and profile. Navigation through the main views was done with the bottom navigation which lead to Discover, Social Feed, and Profile. The App bar at the top should always display the search icon and feedback icon for quick access as well to quickly send feedback to the developers. The Discover view displayed the most popular games with their cover art and a small dark transparent bar that displayed the game name, release year, and rating. The Social feed was split into three different parts; Following, Friends, and Discover. The posts were viewed as cards presenting the user, connected game, media, message, and options. The options were displayed as easily recognisable material design icons. A user could then quickly 'like', display other comments, reply, and see the other options behind the 'more' icon.
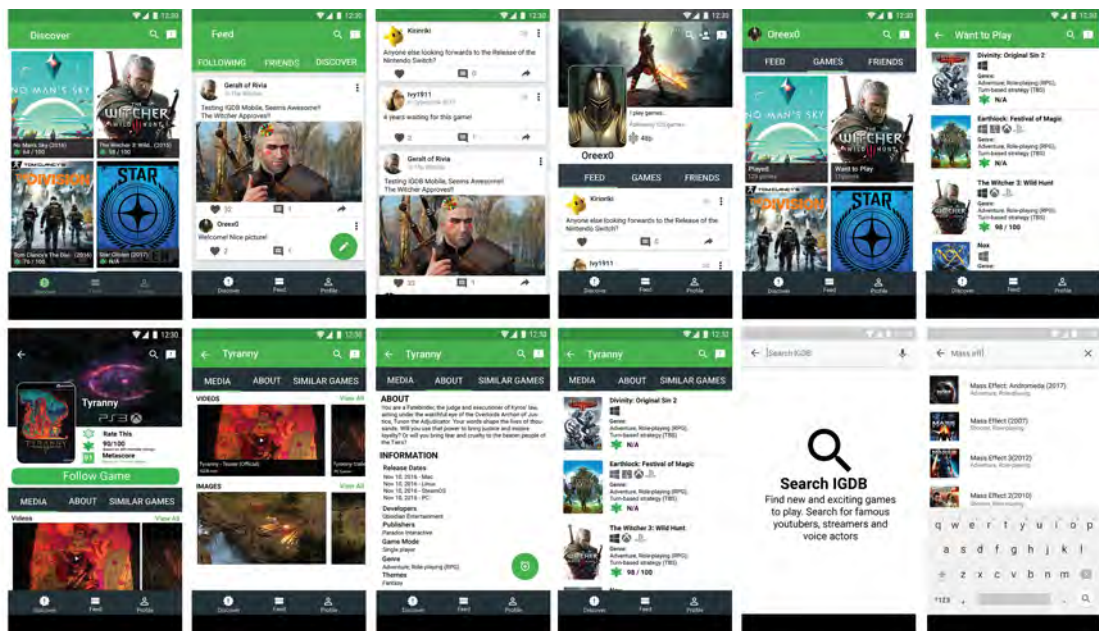

Figure 5.4: Screens for all of the views, first iteration prototype, for larger images see appendix D

The Profile view displayed the user's information; Cover image, background image,

Bio, number of followed games, and their karma points. Displaying the Karma points was intended as a test to draw more attention to their Karma system, to drive more users to use it. The profile was divided into three sections; their social activity, their game lists, and friends. Every user has at least three lists on IGDB.com; Played games, Hyped games, and currently playing. Displaying these in the application could bring more users to open the application as well as prepare it for list management. To save space on the profiles page we placed the "add friend" button in the application bar, this would also ensure that it is always visible.

This prototypes game pages were information focused, trying to show as much information as possible on a small surface. At a glance the user can see Cover, one Screenshot, Name, Platforms, and ratings. To avoid endless scrolling the game pages had three parts; Media, About, and Similar games. Media showed all images and videos in horizontally scrollable lists, About displayed all the game information while similar games gave the user a list of related games. The last feature in the prototype was the search functionality. When the user tapped the search icon it opened a search view in another colour to display that the application has changed focus to search.

5.3.2 Second iteration prototype

The second iteration of the prototype changed the layout of Discover, Game pages, and the Profile page. Our first iteration was too focused on the informative aspect of the website while the company wanted more focus on the social features. Our feedback stated that the discover view should display more information, not just popular games, but also newly released games and games that are going to be released soon.
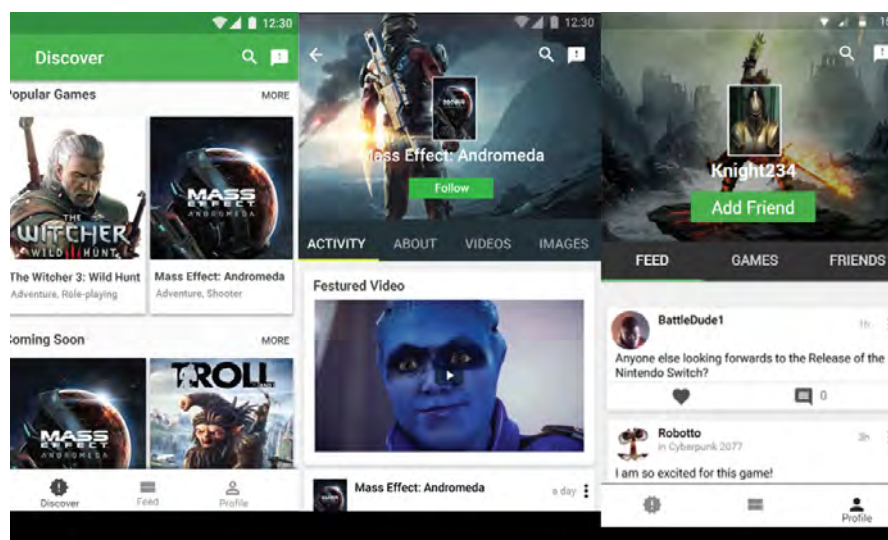

Figure 5.5: The changed views in the second iteration prototype

The new Discover page, see figure 5.5, was divided into three parts; Popular games, New releases, and coming soon. This view could easily be expanded to show more interesting lists such as highly rated games. The change of focus lead to a redesign

of the game pages and profile pages. The new Profile page placed the "Add friend" button in the center instead of a placement in the application bar. The game pages received another tab called Activity which would display all the social interactions that the game had received. The profile and game page now shared the same top section layout, cover in center with the name and "follow" button, this layout can be seen in figure 5.5. Game pages also received an extra tab called activity. Because the designs should focus more on the social aspect of IGDB it was only natural to show a games social interactions as we show the users. The bottom navigation's colour scheme was changed from a dark theme to a lighter theme, because it was more pleasing to the eye than the dark one, it fits better with the overall colour scheme.

5.3.3 Third iteration prototype

The third prototype which is also the interactive prototype overhauled the game pages and profile pages again. The new layout moved the text from the background image onto a completely white background making it easier to see and read. This interactive prototype was made using *JustInMind* which produces an interactive HTML prototype. This prototype was uploaded to their cloud service and made available to our testers through a link.
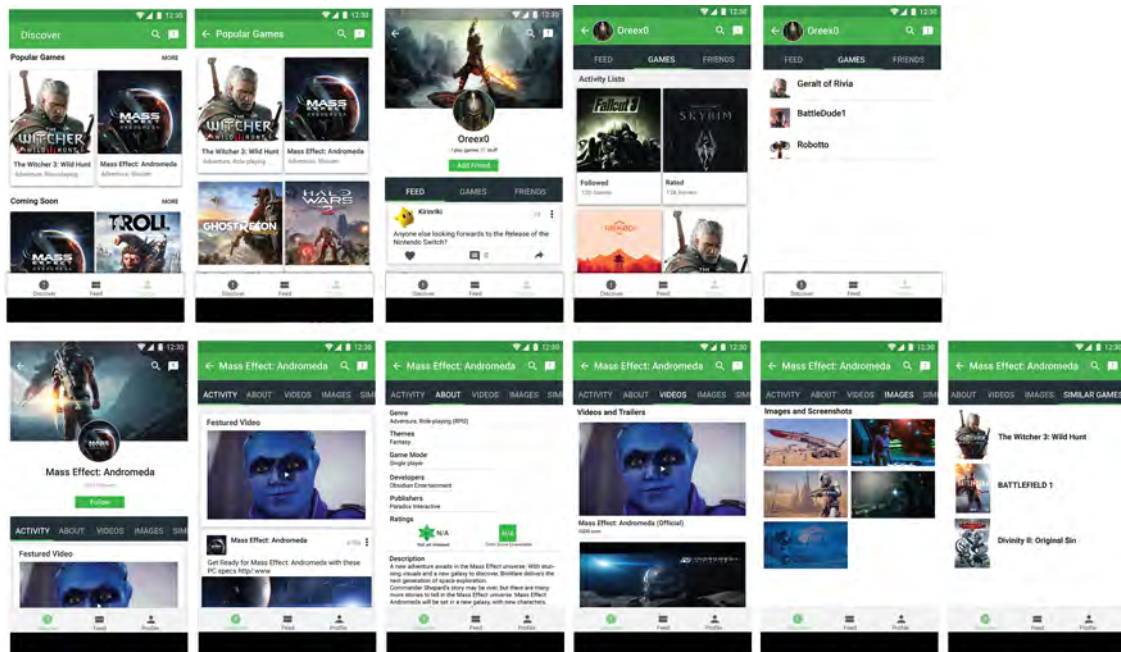
Figure 5.6: Screens for all of the views in the third iteration of the prototype, see larger images in appendix E

Using the email addresses, that the users left us in our previous survey, we sent out this prototype with instructions for the test and some questions that we would like the users to answer. Our success with the last survey did not last as out of over 60 email addresses that we used for this user test we only received five answers, for the result of the survey see section 5.1.

The application should have a log-in function, see figure 5.7 to let the users of IGDB see their own information. We designed two versions of the IGDB log-in views one with an game screenshot and one without. This was never tested in the interactive prototype or the deployed application as it was deemed to take too long to complete.
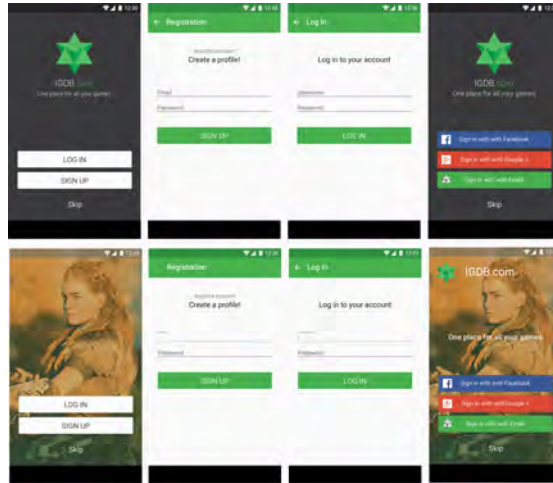
Figure 5.7: Prototype screens for log-in views

5.4 Mobile Application

After seven weeks of development a finished android MVP application was released on the Google Play Store for Beta testing. This section will present the finished application presenting the Onboarding, News Feed, Article View, and Game pages.

5.4.1 Onboarding

The final version of the application the focus had shifted. Originally it was supposed to be an application meant to cover most of the features offered on the IGDB website. But it became a more specialised application meant to give the user access to gaming news from over 30 different news sources at the time of writing. Gathering content from this many sources means that there will be too many irrelevant articles that will have a negative impact on each user's experience when using the application. To solve this problem, we made it possible for the users to select the topics that they are interested in. These topics can be genres such as shooter games, special player perspectives like virtual reality or games from smaller indie developers. Users can also search for specific games and receive any news written about that game. Lastly they are also able to select which sources they would like to see news from. These filters ensure that each user is presented with a personalised feed and that the number of articles added each day is kept at a manageable amount.

These filters are shown as a part of the initial onboarding process which the users go through the first time they start the application. The onboarding process is divided into three steps, visible in figure 5.8, the first step allows users to select topics that are relevant to them. These topics are presented using *Chips*, a material

design component that is often used to display contacts. When a chip is pressed, it is intended to open a full detail view. The chips used in this application does not do that in its current state. The current topic selection is a simplified version of its intended functionality where each topic also contains hidden subtopics. In a future version of the application, tapping a chip will expand the list displaying the subtopics belonging to that topic.
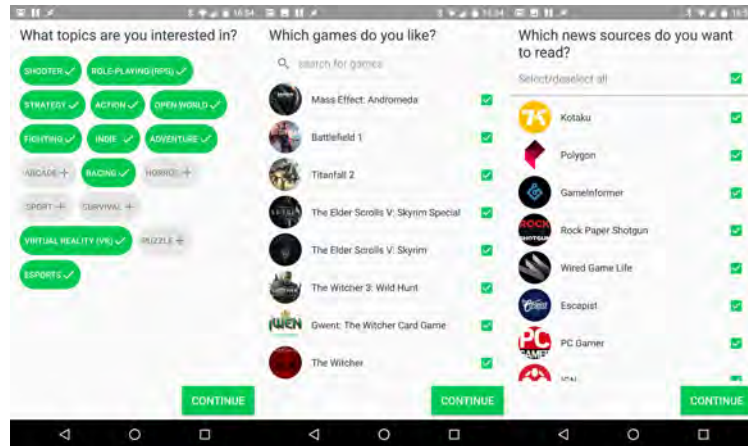
Figure 5.8: In-App: The three onboarding steps the user takes to customise the presented news

The second stage of the onboarding process allows the users to select specific games they are interested in reading articles about. This view presents the user with a list of games based on the topics they selected in the previous stage of the process. It is also possible for users to search for specific games from this screen if they are not available in the list of suggested games. Games are selected by tapping them and a checkmark indicates if each game is selected or not.

The last section of the onboarding process allows the users to select which sources they would like to read news from. Each source is presented as an element in a list in the same way as the games are presented in the previous stage. All sources are selected as the default setting and the users can select or deselect sources by tapping them. There is also an option for selecting or deselecting all sources with one tap. This allows the users to easily ignore sources they specifically do not want to see content from while keeping all other sources with a minimal amount of actions. The same thing goes for users that only want to see news from a smaller number of specific sources.

5.4.2 News Feed

Once the onboarding process is completed the users are directed to their personal news feed. While this feed is loaded, the users are briefly shown a loading screen saying "please wait while we load your content". This screen is only displayed for a fraction of a second but it serves as a verification that the onboarding is completed and that the application is ready to be used.

When the feed is done loading the users are presented with a list of articles based on their selections during the onboarding process. Each article is represented by a
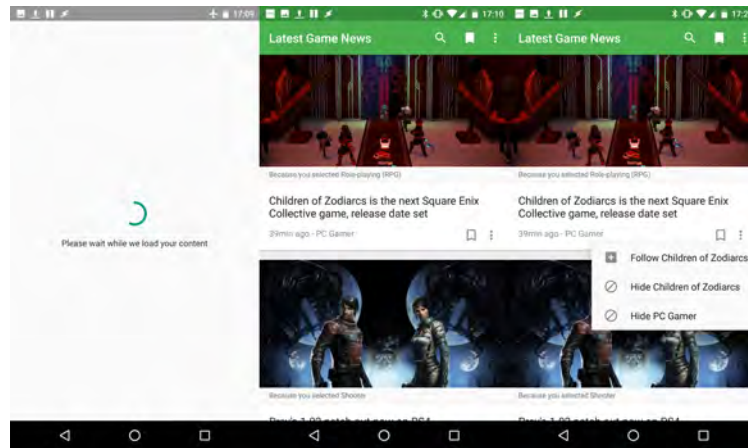
Figure 5.9: In-App: The Loading view and the news feed displaying 'more' button options

card. These cards each hold and image from the article, with the exception that the article has no image in which case the card becomes smaller. In addition, each card displays the title of the article, how long ago it was published, which source it comes from and why it is presented to the user (because of a game he or she is following or a selected topic). The cards also enable several actions:

- **Bookmarking:** As the feed is constantly updated and hundreds of articles are added each day, it becomes necessary for users to be able to save articles that they would like to read at a later point or if they want to be able to show them to someone later. By bookmarking an article, it is saved and becomes available to the user in a separate part of the application where all bookmarked articles are displayed in a feed just like the main news feed. The bookmark icon changes whether it is bookmarked or not. If the article is not bookmarked, the icon remains 'empty' as seen in figure 5.9, otherwise it is filled to show its bookmarked state.

- **More Button:** To not overburden the users with a lot of action buttons that are not used as frequently they are hidden behind a more button icon.

  - **Follow Game:** When a game is being followed, it means that all articles concerning that game is added to that user's feed.
  - **Hide Game:** By hiding a game, it is instantly unfollowed in the case a user is following that game. It is also filtered out from the news feed if it would appear there based on a topic selected by that user.
  - **Hide Source:** Hiding a source removes all articles from that source from the user's feed.

From the applications App bar (formerly known as the action bar) the user have access to several actions and a menu:

- **Search:** Users can search for specific games to view all news about that game but also other information about that game. It is possible to search either by typing in text or by voice.

- **Bookmark:** This action button gives the user access to his or hers bookmarked articles in a dedicated feed.

- **More Menu:** As the amount of space available in the App bar is very limited the following actions are hidden under the more menu:

  - **Feedback:** To ensure that users are given an adequate chance to voice their opinion the application makes it possible for users to send feedback in the form of an email. The users only have to select their preferred email application and they are given a pre-filled email with the recipient information filled in, as well as some basic information about their phone.

  - **Personalize:** This option allows the user to reselect the preferences chosen during the onboarding process. If a user would want to change which sources they receive news from or select different topics this is the best way to go about doing so.

5.4.3 Article View

Tapping an article in the news feed displays the article view. This view presents the same image as the corresponding card in the news feed at the top of the page. Below that is the title of the article, followed by how long ago the article was published, the author and the source. Below that basic information is the article itself. At the bottom of the article there is a link to view the source of the article in a WebView inside the application. And finally, beneath that are two chips, one for the source of the article which opens a feed displaying all news from that specific source. And the other chip links to the game attached to the article.
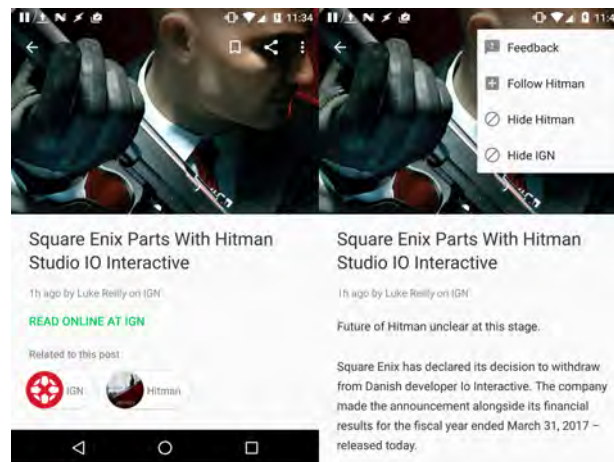
Figure 5.10: In App: Opened article displaying all menu options

From the applications App bar the user have access to several actions and a menu:

- **Up Button:** The up button exists to make it easier for the users to return to the application's main view, the news feed. Pressing on the up button will instantly navigate the user to the views parent activity, in this case the news feed.

- **Bookmark:** Works in the same way as described earlier in subsection 5.4.2. The icon here also changes depending on whether the article is bookmarked or not, 'empty' if not bookmarked and 'filled' if bookmarked.

- **Share:** The share icon activates android's share via intent. The user is presented with a list of installed application where the user can pick and choose where to share the article.

- **More Menu:** To not overburden the users with a lot of action buttons that are not used as frequently they are hidden behind a more button icon. This more menu contains the same options as the cards, described in subsection 5.4.2; Follow game, hide game, and Hide source with the exception of also containing the option of sending feedback.

5.4.4   Game Page

Each game has a dedicated page where users can see information about that game to decide if they want to receive news about it. The top of the game page only displays the title of the game, an image, the game's cover and release date. Aside from this basic information there is a single button for following the game. By following the game the user will receive news about it in his or her news feed. If the user is already following the game the button is instead used to unfollow the game.
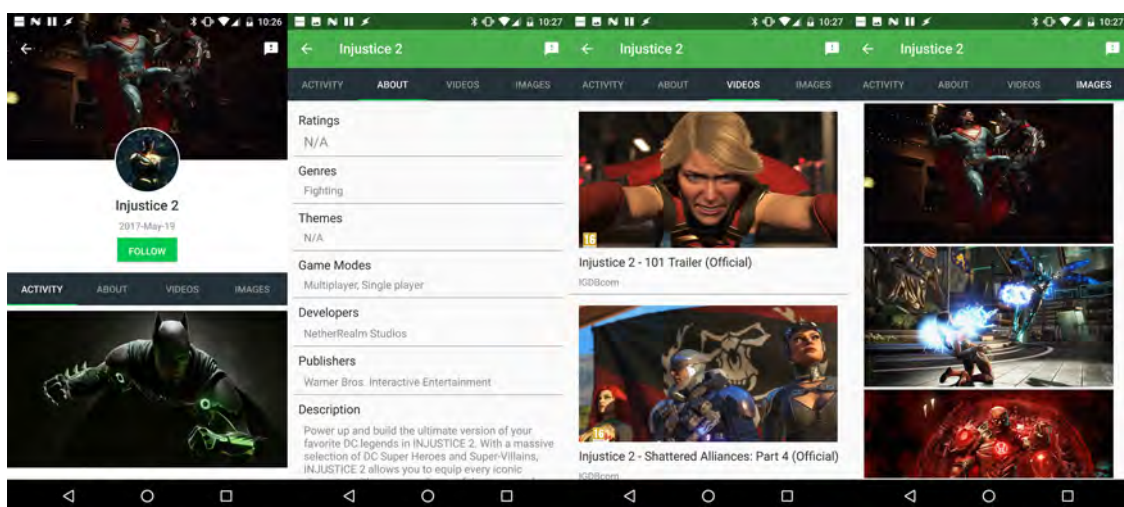
Figure 5.11: In-App: The game page tabs of the game Injustice 2

The content on the game page is divided into four different tabs:

- **Activity:** This tab displays a feed with every article related to the relevant game. the content in this feed comes from all sources regardless of which sources the user has selected.

- **About:** The about tab holds more in depth information about the game such as genres, developer, publisher and a description of the game.

- **Videos:** A list of videos such as trailers or other video content related to the game.

- **Images:** A list of screenshots and other images related to the game.

The application was published on the Google Play Store on the 4th of May 2017 as a beta release. The first release was more of a test to see how long it would take the Play Store to process the application, as the application was not 100 % complete. The application was uploaded another three times to add the bookmarking functionality and to fix some bugs which made us loose beta testers. Shortly after the release of Version 1.04 we received a comment through our channel at Discord where a user requested that we release the application on the Amazon store as well. The application is now stable, deployed, and accessible from the Google Play Beta Store and the Amazon store for download and testing. As of this writing, 2017-06-07, we have 851 downloads with around 300 (Unique) active weekly users.

6

Discussion

6.1 Methods discussion

In the methodology chapter, chapter 3, of this report we described the methods that we planned to use during this thesis. We started by conducting user research through a questionnaire to establish a general demographic of the current user base of the website. Our choice of using a quantitative approach over a qualitative approach came from their large and widely spread user base. IGDB's target population lives in Europe and North America, but they have many users from other continents as well.

Conducting qualitative user research would have been done with interviews which would have taken too much of our time as we would need to find willing participants representing countries throughout the world as IGDB's services are used by people from many different countries and cultures making it essential that they are represented fairly. Our choice of conducting a quantitative survey using a well-planned and structured questionnaire could provide us with the same result, which we could confirm by using statistical significance. The questionnaire worked out quite well for us as we received a large amount of answers from all over the world, distributed in a way that made it seem plausible that the respondents represented the population accurately, leading to a statistically significant result. However, the questionnaire failed to provide us with enough relevant information to improve the personas that the company received during previous user research, see section 4.3. If we would have analysed the previous user research before conducting our own research the questionnaire would have looked different.

By using a focus group to verify the validity of the questionnaire we were able to make significant improvements to the questions. The discussions from the focus group helped us realise that some of the questions we had included in our first draft served no purpose as the answers could be found in the analytical data IGDB has collected. This helped us reduce the number of questions, which in turn reduces the time it takes to fill out the questionnaire. We also realised that we were to focused on specific features already offered by IGDB in our questions about the respondents reasons for using IGDB. By asking more general questions we were able to learn more about their underlying motivations. Lastly we found that the questions were phrased with fairly technical terms and sometimes needlessly complex English that would have created a language barrier for respondents that are not fluent English speakers.

Analysing IGDB's position on the market place using a method from the book,

Blue Ocean Strategy called a *Strategy Canvas* described in section 2.4.3, gave us interesting insights. We started out comparing many different applications which overfilled the canvas with different value curves and made it practically unreadable. We found that the canvas works better with fewer competitors to compare to. Interesting insights that the canvas could give us was IGDB's placement compared to its competitors. We could easily see in which factors IGDB was lacking compared to the competition and where its potential strengths were. We believe that IGDB's low placement compared to its competitors comes from trying to do many things at once, while the competition has a narrower scope and does it well. This indicates that having a more focused product could lead to it being used more actively by the users as they know what to expect from the service. IGDB has a lot of features but this has not lead to higher retention values.

Although we did not use the Strategy Canvas to its full potential it has been a useful tool to analyse where our application stands against the competition albeit it has been hard to remain impartial, as we decided the placements of all applications. A better way to analyse using the strategy canvas would be to have users answer questions about the applications in question to more accurately measure their position.

Prototyping in iterations worked really well for us in this project. Starting out creating personal paper mock-ups was a great way of testing out our own designs as well as present and explain our thinking to each other. Problem with paper prototyping is that it is limiting and quickly runs out of space. What we mean by this is that it is hard to estimate proportions when prototyping minor details as small texts and images. Because of this we felt it necessary to start prototyping in a digital format because it is much easier to test minor alterations, it is easier to move objects than erasing and redrawing. Creating the basic layout on paper first and then moving on to minor details with a digital tool worked perfectly.

Creating the interactive prototype took more time than necessary because of us being perfectionists. We managed to recreate the Android animations in the prototype which is not a necessary feature to test a prototype. What we should have done was to just present simple views which the users could switch between using simple buttons. This would have gained the same result and given us and the users more time for testing.

The interactive prototype was tested by having users try the prototype while carrying out a number of tasks and answering a few questions. The prototype was sent to respondents from the questionnaire performed earlier in the process, that had expressed wishes to be of further assistance. The tasks they received was meant to guide them through the various parts of the design to ensure that they saw every aspect. This test was carried out without any supervision making it impossible to ensure the instructions were followed. This test resulted in only five responses from the total 64 users who received the prototype. This means that any results from this test can not be considered statistically significant and therefore we did not use it as a basis for any major changes to the design. It was however still useful as it helped us discover minor flaws and details that we had overlooked.

6.2 Result Discussion

The result of this thesis is a deployed android MVP application for IGDB. This has been achieved as the application was released on the Google Play Store the 4th of May 2017. The first planned MVP was supposed to be a game discovery application with IGDB's newly launched Social Feed. This application was never finished but instead changed into the newly released Game news powered by IGDB application. The reason for this change is explained in section 4.9.

The change of direction for the application came suddenly and late in the development. Our biggest concern was the conversion of the application from the finished Discover games application to the new concept of Game News. Even though we were concerned over this change we still wanted to follow the company's wishes. We thought it through and broke the task down to single views to get a better grasp of the task and the amount of work required. This gave us a better overview of the new task where we discovered that it was achievable in the time we had left, which was two weeks.

In retrospect, the change of direction felt like a good decision as the application became more focused. This focus makes it a lot easier to design, develop and brainstorm ideas for improvements, especially since the new concept is more appealing to us personally, which served as extra inspiration.

6.2.1 Addictive software

The goal is to encourage the users to frequently use the application, hence also using IGDB's services. We presented the theory behind creating 'addicting software' in section 2.3, called the Hooked model. The Hooked model discuss how to create user habits to encourage the users to return. When we analysed our finished application, we found these results:

1. **Trigger:** The trigger is the cue that lets the user take action. Right now, our *External* trigger is a bit weak as we are solely dependent on the user to launch the application on their own. The trigger for downloading the application only comes from adverts or people close to the application, which is basically us telling people to test it. The trigger that we are after is the *Internal* trigger which makes the user open the application on their own based on feelings or thoughts.

2. **Action:** The action in our case is launching the application to scroll through the content in search for their '*reward*', which is an interesting article. For a new user, the action would be a bit longer as they would need to download the application and go through the onboarding process before receiving their reward.

3. **Variable Reward:** The *reward* mentioned in action comes in three types; The Tribe, The Hunt, and The Self. Looking at our application we can see that the reward is of the type 'The Hunt'. The user searches for that interesting article until it is found. The reward can be quite unpredictable as the user

does not know what articles that will appear. This is good as the user will get bored by seeing the same things all the time.

4. **Investment:** The investment that the users do to the application is their customisation of their news feed. The users can follow interesting games as well as hide games and sources to create their own custom feed. Another investment that the users can make in the application is to bookmark articles for later reading. The bookmarks feature is a bonus that will encourage the user to return.

We have managed to create a slightly 'addictive' product which we can see through our analysed results as well as follow with analytics tools, online. To improve our already functional 'hooks' would be to invest more in triggering action. While the best trigger for encouraged use is the internal trigger we could increase action by adding another external trigger which would be notifications. We have found that notifications are a powerful tool for engaging the users to return to the application. As a test, we tried to send simple manual notification to all the users which lead to a spike of user activity. 80% of all the users that received the notification opened the application.

Improvements to our variable reward would be to keep adding more sources to gain more interesting articles and remove 'duplicate' articles. Duplicate articles are articles that contain the same information but comes from different sources. Seeing the same thing over and over would not give the users the feeling of variability and would probably lead to boredom. We discuss the solution to this problem further in section 6.4.

The user's investment in the application is good but will take time to properly affect the reward, creating a perfect personalised feed. The investment in this application is to, in the long run, create the perfect feed, which sadly is unachievable. It is unachievable as there will always come new games that the users are not interested in continuing the circle of following and hiding games.

6.2.2 Market position

In the beginning of this thesis we introduced the concept of Blue and Red oceans, see section 2.4. Looking back at the definitions of Blue oceans and Red oceans they state that a Blue ocean is a metaphor for an uncontested market space while a Red ocean, similarly a metaphor, represents a market space with tough competition. We were introduced to these concepts by the company to help us guide the design of the application towards a Blue ocean. Analysing the market space that our Game News application is now inhabiting, which would be news or specifically game news. Searching for news on the Google Play Store will reveal a vast amount of news applications. But because our application is not focused on general news we could say that we are in a subsection of the news category called game news. Searching for Game news instead this will narrow down the applications present considerably. Filtering through the results we can count the amount of news applications to just under ten applications.

This is not entirely a Blue ocean for the application, but it is not terribly Red either. Looking closer at these applications we can see that most of them are displaying their sources rss feed summaries or just displaying the source's websites in a WebView. The majority of these applications are created by developers as hobby projects in their spare time, meaning that they do not have the resources to improve the applications as quickly as a company could. Because of this their applications cannot compare to ours. The only true competitor that we can see from these applications is Appy Gamer which displays the news in a similar way, in the application and not in a WebView. Comparing our application with Appy gamer we can see that we are both trying to solve the same problem in different ways. Appy Gamer that seems to try getting a more social experience with your news as the users can comment and add moods to review the articles. Our application that is trying to connect articles to game information for quick access and discovery of new games.

Looking at our market space and deciding if we are in a Blue or Red ocean we can certainly see that we are not in a completely Blue ocean. It is not completely Red either because of the directions that the applications are going for. IGDB's Game News is the newcomer in this market space that can bring a twist to what users would want with their news. Connecting the news to the game information that IGDB offers and the future prospect of connecting the application to the website might be enough to sway more people to switch.

6.2.3 Analytical results

During the two weeks that the application has been up and running we believe that it has performed quite well. As of the 7th of June 2017, the application has been downloaded 851 times per the statistics provided by the Google Play Developer Console. The websites game news feature called Pulse news has quite low retention values compared to the application where day one retention lies at about 7 % and day seven retention is around 3 %. The application however, has higher retention rates for both day one and day seven at 30 % and 10 % retention. These numbers are still fluctuating a lot as the application has been out for such a short time, this makes it hard to get accurate retention rates.

6.3   Research discussion

The way that IGDB.com worked before was to just implement features that they would think their users would like and then hope for higher retention. What we believed that they lacked was knowledge and understanding of their user group or even their targeted user group. What we decided to do during our work at the company was to figure out what the users of IGDB.com used the website for and what they would like to have in a mobile application. Looking back at the results, see slides in Appendix B, we saw that the users mostly thought of IGDB.com as the IMDB for games, *Internet Movie Database*. Knowing this we concluded that the users were interested in the information that IGDB have accumulated over the years, and is still collecting.

The third largest feature, from the questionnaire, was the list management system that IGDB.com provides for their users. But according to analytics gathered by the company, that feature is only used by a small part of the community. These users are not the group of people that they want to primarily target, instead they would like to target the slightly more casual surfers that visits the site for the content. Any other feature that we would take from the website would need to have the fundamental core of IGDB as well, their database. Naturally the searching for and reading about games are fundamental aspects of anything related to the services provided by IGDB. This is also a natural part of our application regardless of what other features it would have as everything revolve around the data in some way. Looking at our application's retention values compared to the website's values there was quite the difference, see section 6.2, with the application initially showing a higher retention rate though more data is still needed to draw a certain conclusion. We believe that the difference in user engagement when comparing the application and the IGDB news service lies in a few factors:

- **Variable Reward:** The term is taken from the hooked model that was introduced in section 2.3. The term describes the rewards that the user receives from completing an action, in our case launching the application. We stated in section 6.2 that our applications reward is categorised as The Hunt, the search for interesting articles. The reason that Variable reward became one of our factors comes from the applications content. Without content, there would be no reason to use the application but if the same, or very similar, articles would be displayed the users would quickly lose interest. Therefore, having variable rewards makes the users curious about what they will find every time they use the application.

- **Investment:** Is also a term from the hooked model, it is described as investing something into the application. Examples of investment can be to invest money, time or data. This makes it more likely that the user will return to the application, as they have 'placed' an investment. In the case of our application the users invest both time and data in the sense that they take the time to enter which topics they are interested in, which games they like, and do not like, and lastly which sources they want to see content from. This became one of our factors because it increases the quality of the user's variable reward, therefore also increasing their expectations the next time they launch the application.

- **Notifications:** During a manual notification test with the application we noticed an increase of about 80% in user engagement. Notifications triggered the user's interest and led them to open the application. Notifications could be used as a tool to increase user engagement if used with moderation as was also noticed that notifications can also lead to loss of users, see section 6.4

- **Personalisation:** Allows the users to customise the content to hide irrelevant or uninteresting content. Presenting more relevant content will keep the users more engaged as they are viewing content that is interesting to them. Removing annoyances in form of uninteresting articles will give the users a more

pleasant experience. We noticed in the first version that annoyances in terms of bugs lost us many users. Example of this, seen live in Firebase, was a user that received two application crashes, one after another, which is an annoyance. This lead to an uninstallation of the application. Thinking about news articles that are not interesting constantly appearing would become equally annoying as the application becomes boring, leading to uninstalls

- **Simplicity:** This term is a combination of two things; Simplicity in use and easily understandable layout. This comes from the users' requests from both our questionnaire, see the slides in Appendix B, and the feedback from the interactive prototype. What the users want is something that is easy to use and look at. With a simple application, the users should not have to go through a tutorial in its use, they should understand by looking at it. This could also be connected to the applications focus, the users should be able to understand what the application is for with just one glance. This factor comes from the users request for simplicity in both the use and layout.

Each of these factors by themselves are likely not enough to encourage users to actively engage in the services offered by IGDB but when combined we believe they can achieve the goal of this project. Each of the factors are also somehow dependent on one or more other factors to be effective. For example, investment and personalisation improves the variable reward, notifications remind the users of the rewards that is to be had and simplicity should be found in every aspect of the application to improve user experience.

This is what we believe are the major factors that have contributed to better user engagement on the mobile platform than what IGDB sees on their website. We believe that these factors could be used for other types of services as well, as they are quite general. To engage users the service needs to be simple to use and understand. It needs good content, which is the hardest to achieve. It should let the users invest their time and personalise the content to their liking. Notifications can be used if appropriate, if it is used inappropriately the users will leave the service.

6.4   Future Work

We have managed to create an MVP android application for the company. MVPs are created for testing a hypothesis, in this case creating an application that aggregates Gaming news. We have managed to create that MVP, with some extra functionality but to there is much left to be desired. To take the application to the next step, from the beta store to the live store, there are still some improvements to be made. These improvements will also help keep the users attention and encourage more active use. The key feature missing from the application that will improve the retention is, in-app is notifications. Notifications are powerful tools to get the users to return to the application. Implementing support for automatic notifications, e.g. just notifying when the user has new content would help. Implementing notifications for the application there would need to be a settings view to let the users decide if they would want the notification or not. Through continuous tests with manual

notifications, we saw a high correlation between application uninstalls and received notifications. Which indicates that users that cannot can not turn off the notification would rather just remove the application.

Analysing other news application reviews reveals a recurring complaint from their users that they keep seeing multiple articles about the same subject, not duplicates but the same story from different sources. This is a problem that we ourselves have noticed in our own application.

Solving this issue could lead to more users choosing to use our own application instead of the competition leading to more users. One of our ideas for a solution to this problem would be to implement groups of articles in the feed, only showing the latest article in that group. This way the user could understand that this group contains the same type of information. Another idea for a solution would be to change the layout of the feed which usually only scrolls vertically but to include a horizontally scrollable list of articles that contains the same news. This way the users could just scroll through the same news if they are interested or just scroll to a specific source to read the news.

Improving our own onboarding to take less time and show more relevant content would help to keep the users engaged, this could lead to them staying longer and using it more, the application would receive higher retention. An idea that we have for this is to remove most of the onboarding leaving the topics only. Looking at the data from our own application in the analytics we can see that the users do not select many games in the onboarding and they almost never remove a source. A better solution could be to have an application with only one onboarding step. And then allow the users to customise their own feed by removing sources and hiding games in the feed directly. It might take the user a bit longer to fully complete their customised feed but it could be a better feed in the long run and will lead to better discoverability for new games. Another reason for removing the games part of the onboarding is that the users might want to select older games and anticipate news that will never be seen, as no source is writing about them. By letting the user follow and hide games that appear in the feed we can ensure that the users will see information that they find relevant. An addition to this idea is to add log-in from IGDB.com to gain access from the user lists. The lists that every user has on the website is; Playing, Want to play, and Played. Having access to these lists we could allow the user to automatically follow these games generating interesting content from the moment of log-in.

Improvements to the application that has been requested from our own users, using our Discord channel, is to add an offline mode. Right now, the application is not usable without an internet connection and would display a screen to the user explaining this, see figure 6.1.

Our idea of adding this feature would be to let the user see their bookmarked articles offline. Adding a button to the offline view promting the users to view their bookmarks would take them to that view. This feature would consume more memory from the user's device but it would not be a noticeable amount and it will go down as the user reads and removes bookmarked articles.

The features that the application should have but is not implemented, because of time constraints, are allowing the users to enlarge the images in the game page.
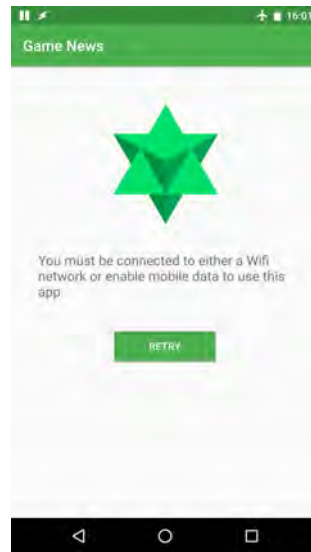
Figure 6.1: In-App: No connection to the internet displays this view

Right now, there is a list of images that are inactive and cannot be enlarged. Creating an in-app video player for showing videos in the application instead of sending the users to the YouTube application. An in-app player would need to be able to stream video from multiple sources as some news sources does not use YouTube to store their own videos. Adding videos in the articles would improve the user experience, now the users must open the articles website to view the videos which can be an annoyance. The last feature that we would have liked to add to the application but did not have time to start is called article parsing. This feature would try to recreate the article the same way as it is written on the website. Right now the articles are only shown with simple text, this feature would add titles, videos, and images to their correct positions improving the quality of reading the articles in the application.

7
Conclusion

The intended purpose of this thesis was to explore what factors would encourage gamers to actively engage in IGDB's services through a mobile application and how interaction design can be used to achieve this. The secondary purpose of our work was to design and implement a MVP of such an application and publish it on the Google Play Store.

To achieve this, we have had to use a wide variety of skills that we have learned throughout our education, everything from user research methods to design methods and finally programming and programming principles. It has been a great learning experience to carry out every step of the product creation cycle. The skills we have acquired from our education was a good starting point from which we could increase our knowledge further to be able to carry out this project.

We have noticed that by combining the methods that we have used and a mobile platform we can indeed encourage active usage of IGDB's services. We believe that the reason for this is a number of factors which we describe in section 6.3 The application is still being tested and analytical data is being collected continuously. The results that we have collected so far does however show promise.

What we achieved in the end was an android application dedicated to one of the features offered by IGDB. We found that the small screen of a smartphone forced us to be selective with what we incorporated into the design, which helped us create a better design with less excise and superfluous content. The future work includes bug fixes and improving stability, improvements to the onboarding process, notifications to further increase retention ratings and grouping similar content so that user's feed is not filled with the same piece of news from several sources.

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Bibliography

A

Appendix Questionnaire

IGDB Feedback Survey

We at IGDB are designing a mobile application and we are interested in your opinions and use of IGDB. Please help us by answering the following questions to the best of your ability. Be yourself and be honest. This survey is completely anonymous and will take approximately 5 to 10 minutes. The results will not be published or communicated to third parties.

How old are you?

○ 9 or younger

○ 10 to 15

○ 16 to 21

○ 22 to 26

○ 27 to 35

○ 36 to 45

○ 46 and older

What is your gender?

○ Male

○ Female

○ Other

○ Don't want to share

On what device(s) do you currently play games?

☐ Desktop Computer (Windows / Mac / Linux)

☐ Sony Playstation

☐ Xbox 360/ONE

☐ Nintendo Wii/U

☐ Smartphone

☐ Tablet

☐ Other

How many hours do your spend playing games per day?

○ 1 hour or less

○ 2 to 3 hours

○ 4 to 10 hours

○ more than 10 hours

What is your current occupation?

○ Full-time employement

○ Part-time employment

○ Retired

○ Student

○ Unemployed

○ Don't want to share

What is the best thing about IGDB according to you?

Please type here...

Why do you visit IGDB.com?

- [ ] I want information about specific games
- [ ] I want to stay updated about what happens in the gaming world in general
- [ ] I like to add more information about the games on the site
- [ ] I like to organise and keep track of all the games I've played and want to play
- [ ] I want to discover new games to play
- [ ] I want to share game related content
- [ ] I want to check out game trailers, gameplay videos and screenshots
- [ ] Other reason

Which mobile OS do you use?

- ( ) Android
- ( ) iOS (Apple)
- ( ) Windows Phone
- ( ) Other

What smartphone apps do you use on a daily basis?

Please type here...

What would be the perfect smartphone app for gamers?

Please type here...

What feature(s) would you like to have most in a gaming related smartphone app

- [ ] Search for games and view information
- [ ] Read and write reviews
- [ ] Read gaming related news
- [ ] Add/edit game information
- [ ] Share gaming content with other users
- [ ] Organize games I have played and want to play
- [ ] Get game recommendations
- [ ] Find other players to play games with (Party finder)
- [ ] Other

What social media apps do you use?

- [ ] Facebook
- [ ] Twitter
- [ ] LinkedIn
- [ ] Google+
- [ ] YouTube
- [ ] Instagram
- [ ] Pinterest
- [ ] Tumblr
- [ ] Snapchat
- [ ] Other

Do you consider yourself to be active on social media?

- ( ) I post and read posts on several social medias everyday
- ( ) I post and read posts regularly
- ( ) I read other peoples posts but don't post much myself
- ( ) I rarely visit any social media
- ( ) I don't use social media at all

B
Appendix Survey Slides

Survey Results

A Summary

What's My Age Again?
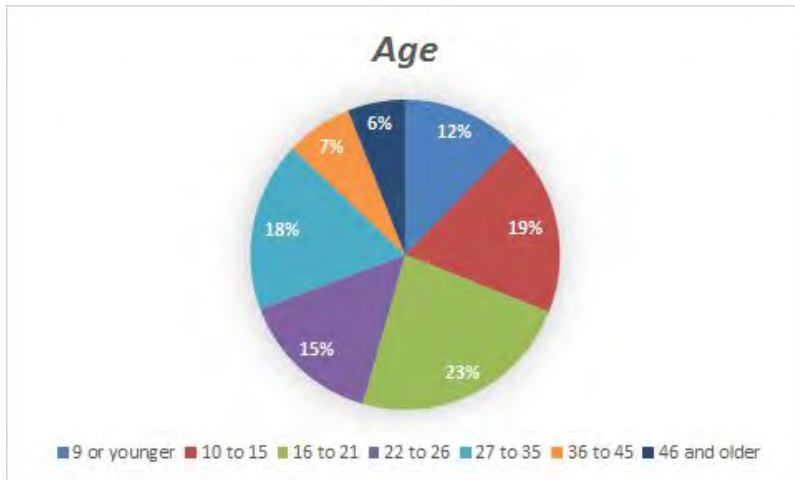
Age	Count
9 or younger	39
10 to 15	59
16 to 21	74
22 to 26	47
27 to 35	56
36 to 45	22
46 and older	19

Man or Animal?
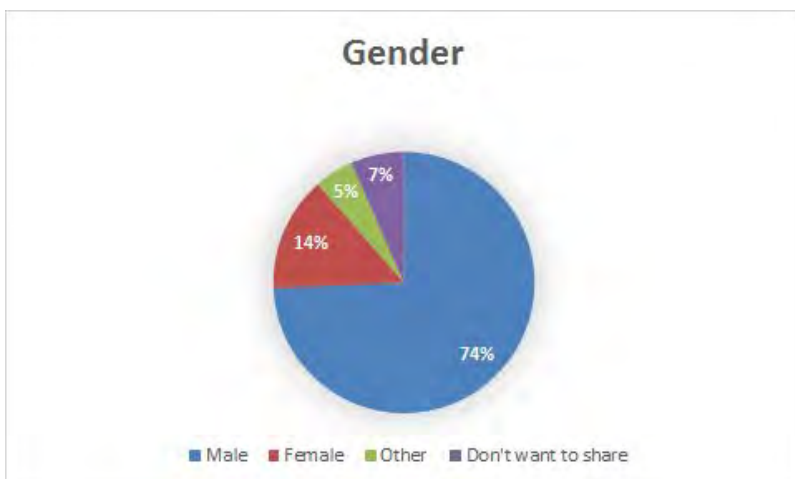
Gender	Count
● Male	214
● Female	41
● Other	14
● Don't want to share	19

PC Master Race or Console Peasant?
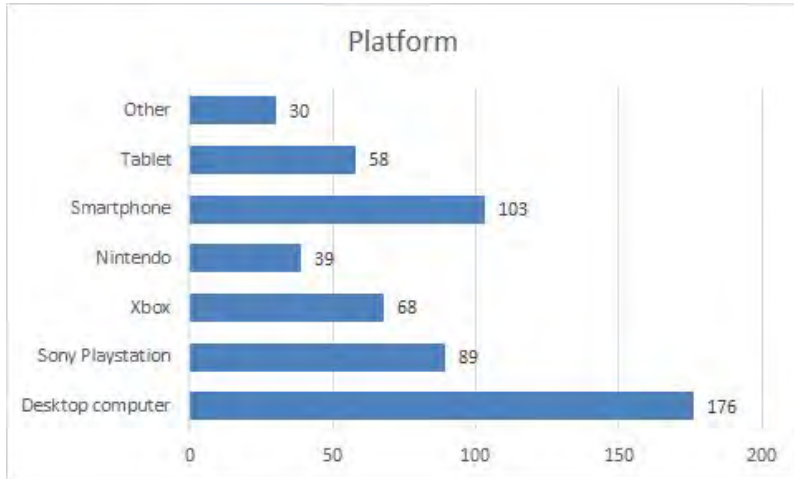
Platform

Platform	Count
Desktop computer	176
Sony Playstation	89
Xbox	68
Nintendo	39
Smartphone	103
Tablet	58
Other	30

Hardcore or Filthy Casual?

Time on games
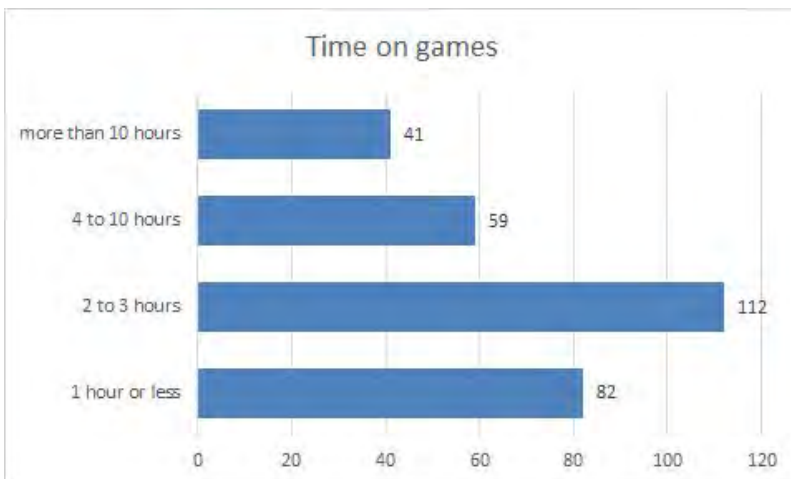
Hours	count
1 hour or less	82
2 to 3 hours	112
4 to 10 hours	59
more than 10 hours	41

Working Class Hero?

occupation	count
Full-time	95
Part-time	22
Retired	9
Student	103
Unemployed	19
Don't want to share	40

What is the Best Thing About IGDB According to You?

News Aggregator

- Game News   News aggregator   The Pulse
- New things about everything in gaming!
- Everything in one place No need to go to individual sites
- Twitch minus chat
- Discovery, increasing knowledge about gaming

Information about games

- Information about games
- Info about new releases
- Game ratings
- Reviews
- User contributed information (Better with bots or admins → Accuracy)'
- In depth information
- Information about more than just the game
- Find new games
- Quick info about games
- "All existing games and easy to find"
- Database of Reliable information
- Watch lists and Meta Scores
- Where can I get games?
- Information about every game (indie, game jams etc.)

Social Community

- Make friends to play with online
- Fresh and growing community

Countdown

- Timer for game releases or events
- Need countdown for english releases
- Huge database with release dates

Website design

- Clean simple design
- Easy to navigate
- Good entertainment Information
- presented in a cleanly.
- Modern and beautiful.
- Fast searches,   Advanced search
- "List function for widget"
- Supported by gamers not commercial companies

Recommendation of games

- Potential to become great at recommending games
- Discover similar games/studios/individual developers
- Never worked… now gone…

API

- Database free access through API
- Helpful api for my own project

List of games / tracking

- Organise games   played / want to play / Playing
- Rate games
- Games wishlist
- Making own lists, Gameplay history
- Track upcoming games

Why Do You Visit IGDB?

Reasons to visit IGDB	count
Information about game	163
updated on gaming world	78
add information to games	66
Organize games	89
discover new games	109
share game related content	27
see trailers and screenshots	64
Other reasons	23

Mobile OS?
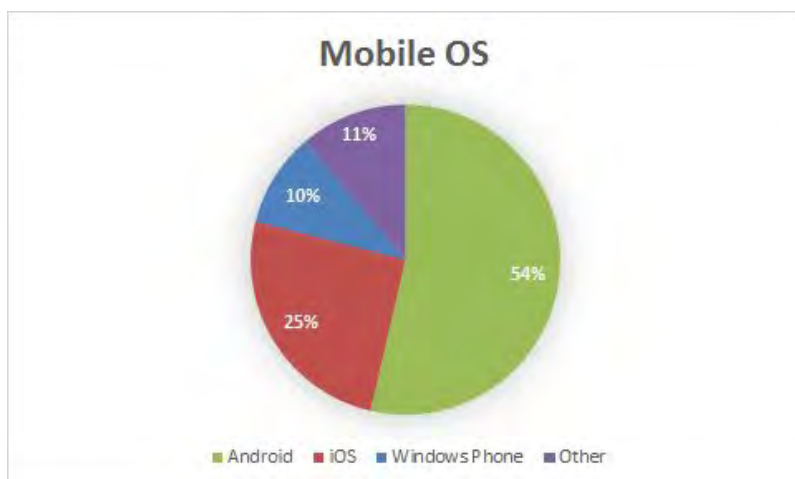
OS	count
Android	148
iOS	70
Windows Phone	27
Other	31

What Apps are You Using On a Daily Basis?

Most used Apps

App	Count
Spotify	2
Slack	2
One Note	2
Viber	2
9gag	2
Banking	2
Outlook	2
Camera	2
imgur	2
Google Inbox	2
Discord	2
PlayStation app	2
Minecraft	2
Skype	2
Alarm	2
Geometry dash	2
Google Keep	3
News	3
Games	3
Music App	3
Steam	3
Telegram	3
BBC News	3
Email	3
Calendar	3
Gmail	3
Google Maps	3
Feedly	3
Firefox	3
Safari	3
Clash Royale	4
Google Play Store	4
Clash of Clans	4
Snapchat	7
Google Chrome	8
Messenger	9
Reddit	9
IMDB	10
Twitter	13
WhatsApp	14
Instagram	14
Facebook	22
YouTube	22

What Would Be the Perfect Smartphone App?

Lists
- See Game list
- Add/edit Game list
- Sort Function
- Simple to use GUI
- Rate Game/List
- Ranking
- Release date
- See who plays the same games
- Game Achievements

Recommendations
- Recommendations based on other games played
- Similar to IMDB recommendations
- Compare games (more action, better guns, story)character customization (graphics)
- Track game progress (Steam Achievements)
- see what friends play

Social
- Allow users to communicate and discuss gaming
- generate gaming communities
- See achievements manage friends across platforms (steam, psn, xbox)
- Chat
- See what friends are playing

What Features Would You Like in a Gaming Related App?

Features for app
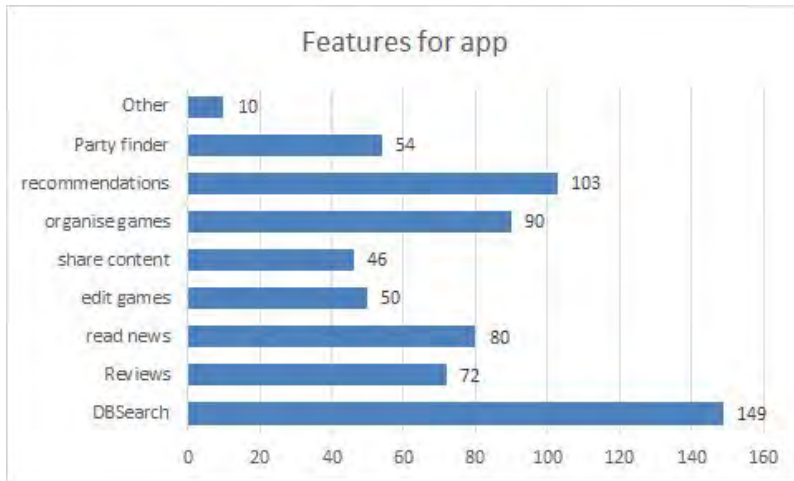
features	count
Db Search	149
Reviews	72
read news	80
edit games	50
share content	46
organise games	90
recommendations	103
Party finder	54
Other	10

What Social Media Apps do you use?
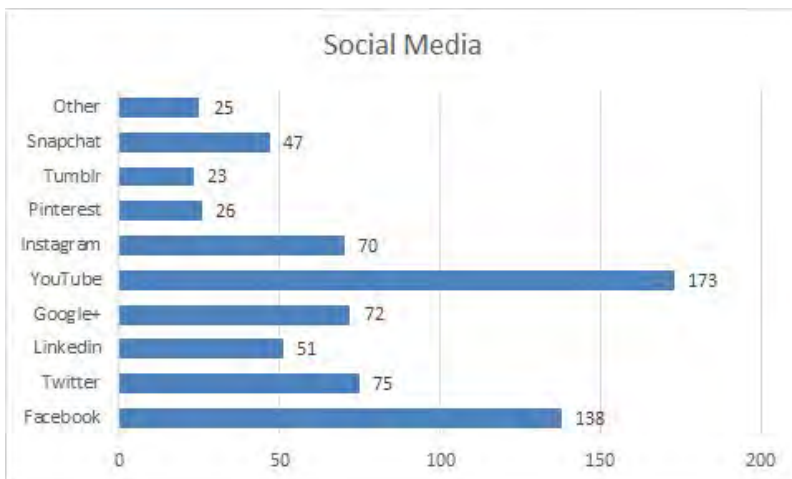
Social Media

Facebook	138
Twitter	75
Linkedin	51
Google+	72
YouTube	173
Instagram	70
Pinterest	26
Tumblr	23
Snapchat	47
Other	25

Social Media Vs. Game Social Media

Social Media Comparison
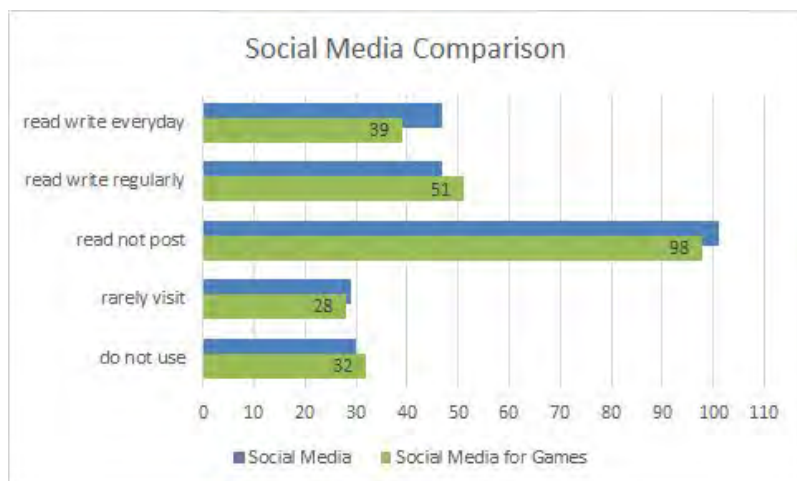
	Social Media	Social Media For Games
read write everyday	47	39
read write regularly	47	51
read not post	101	98
rarely visit	29	28
do not use	30	32

Do you have anything else you would like to share?

Ideas / Feedback

- Sign in using Steam
- Game recommendation system seems to be down or dead
- Game recommendation system please
- The personal game lists feel hard to operate inside (sorting etc)
- I use Google+ to login, but this causes me to be logged out in between every visit. It would be nice to remain logged in
- I find the new format of the website hard to use. News stories should be more focused and more concise.
- Some type of Forum would be a good idea. on an unrelated note, i feel as though a "party finder" would be spreading the site's social functions too thin.
- I would love to have the ability to extract the data for my Excel sheet, like you can with IMDB data.
- I would like to be able to organize my lists in a specific order (by name, note, date of addition, etc.) as for example in "MyAnimeList"

Ideas / Feedback

- Please could you add a parents guide so that I know she whether a game is good for my son.
- It needs more tracking features (progress in %, mark games as dropped, add collection, support different platforms) and needs better episodes integration (see Batman by Telltale Games).
- You need not mobile app, but Desktop app for Windows and Linux, to track game time
- Give information about how you could get games (secure download link)!!!!!!! -- ¿Pirate?
- Check out the VGA (Video Games Amino) app for inspiration! Improve it!
- Remember, it has to be a free app, with non-intrusive monetization, it'll never work otherwise
- the site need updating in a lot of ways, sometime i try to add an old game to my list and realize it's not there or some of them still in "unreleased" state.. also I don't like the design and it take long time to load on slow internet.
- I hate auto play videos
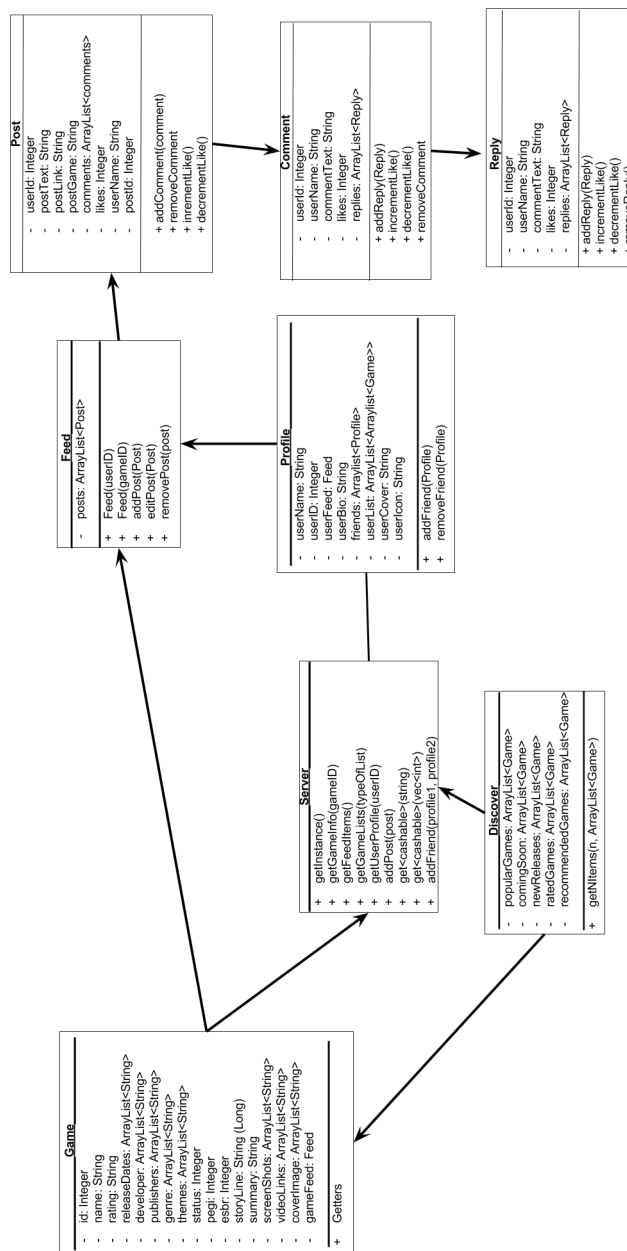- I have an Italian gaming website and I'd like to be in aggregate reviews

Respondent Countries

Country	Count
Argentina	2
Austria	2
Bangladesh	2
Chile	2
Colombia	2
Hungary	2
Ireland	2
Kazakhstan	2
Lithuania	2
Morocco	2
Serbia	2
Vietnam	2
Canada	3
Iran	3
Netherlands	3
Norway	3
Puerto Rico	3
Saudi Arabia	3
Turkey	3
Belgium	4
Greece	4
India	4
Australia	5
Czechia	5
Denmark	5
Bosnia and Herzegovina	6
Brazil	6
Poland	6
Germany	7
Pakistan	7
Spain	8
France	9
Russia	10
United Arab Emirates	14
Italy	17
Sweden	17
United Kingdom	17
Romania	21
United States	38
Mexico	62

ANSWERS PER HOUR

2017-02-16 (Thursday) — 2017-02-17 (Friday) — 2017-02-18 (Saturday) — 2017-02-19 (Sunday) — 2017-02-20 (Monday)

Do you have anything else you would like to share? - Part 2

- I'm glad a website of this nature exists
- You guys are awesome! 👍
- Thank you.
- thanks for all the effort!! ;)
- your games are awesome
- Most info per square cm ever! Love it. Moar!
- Please make this app a thing.
- THANK YOU !!! You have done a great and infinitely valuable job and I personally enjoy this website very much. Love the design and content.
- Gracias y Descargalo
- I still like the direction you guys are taking, i've given my input before and i would love to help in any way that i can. Feel free to contact me for anything i can do!
- I like the way it is organized
- Be cool.
- I wish you guys success
- I wish you good luck on the new app. I will be looking forward to it ;)

- I'm very impressed by the work you've done since the beginning. This site was something that was missing from the gaming community. Keep up the great work and let us know what can we do to help you get even better. Surveys like this are important because we feel like you care about what we think. Thank you.

- Keep up the good work!
- You do good stuffs :)
- Keep up the awesome work!
- Love the site!
- Are you guys hiring/pineapple friendly?
- I am the dude!

C
Appendix UML Diagram

Post
- userId: Integer
- postText: String
- postLink: String
- postGame: String
- comments: ArrayList<comments>
- likes: Integer
- userName: String
- postId: Integer
+ addComment(comment)
+ removeComment
+ inrementLike()
+ decrementLike()

Comment
- userId: Integer
- userName: String
- commentText: String
- likes: Integer
- replies: ArrayList<Reply>
+ addReply(Reply)
+ incrementLike()
+ decrementLike()
+ removeComment

Reply
- userId: Integer
- userName: String
- commentText: String
- likes: Integer
- replies: ArrayList<Reply>
+ addReply(Reply)
+ incrementLike()
+ decrementLike()
+ removeReply()

Feed
- posts: ArrayList<Post>
+ Feed(userID)
+ Feed(gameID)
+ addPost(Post)
+ editPost(Post)
+ removePost(post)

Profile
- userName: String
- userID: Integer
- userFeed: Feed
- userBio: String
- friends: ArrayList<Profile>
- userList: ArrayList<ArrayList<Game>>
- userCover: String
- userIcon: String
+ addFriend(Profile)
+ removeFriend(Profile)

Server
+ getInstance()
+ getGameInfo(gameID)
+ getFeedItems()
+ getGameLists(typeOfList)
+ getUserProfile(userID)
+ addPost(post)
+ get<cashable>(string)
+ get<cashable>(vec<int>)
+ addFriend(profile1, profile2)

Discover
- popularGames: ArrayList<Game>
- comingSoon: ArrayList<Game>
- newReleases: ArrayList<Game>
- ratedGames: ArrayList<Game>
- recommendedGames: ArrayList<Game>
+ getNItems(n, ArrayList<Game>)

Game
- id: Integer
- name: String
- rating: String
- releaseDates: ArrayList<String>
- developer: ArrayList<String>
- publishers: ArrayList<String>
- genre: ArrayList<String>
- themes: ArrayList<String>
- status: Integer
- pegi: Integer
- esbr: Integer
- storyLine: String (Long)
- summary: String
- screenShots: ArrayList<String>
- videoLinks: ArrayList<String>
- coverImage: ArrayList<String>
- gameFeed: Feed
+ Getters

D

Appendix MVP 1 Prototypes
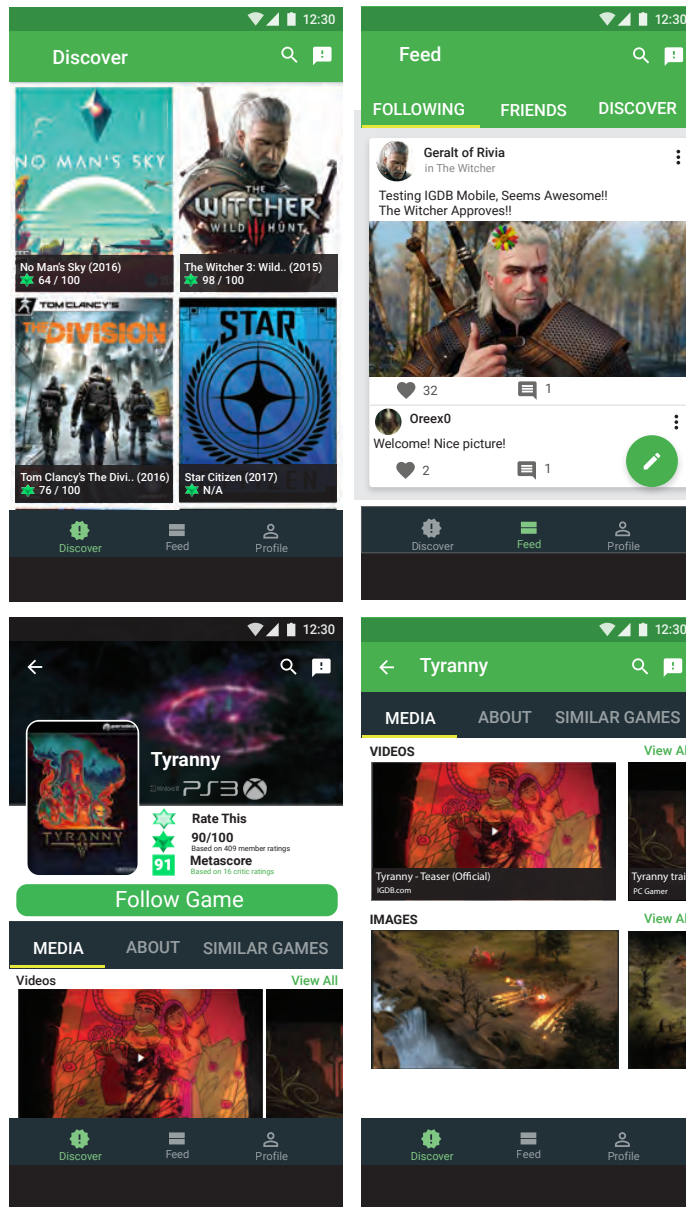
Kirinriki   2d

Anyone else looking forwards to the Release of the Nintendo Switch?

♥   💬 0   ↗

Ivy1911   2d
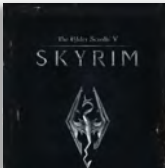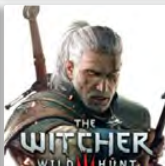in Cyberpunk 2077

4 years waiting for this game!

♥ 2   💬 1   ↗

Geralt of Rivia
in The Witcher

Testing IGDB Mobile, Seems Awesome!! The Witcher Approves!!

♥ 32   💬 1   ↗

Oreex0

I play games...

Add Friend

FEED	GAMES	FRIENDS

Kirinriki   2d

Anyone else looking forwards to the Release of the Nintendo Switch?

♥   💬 0   ↗

Ivy1911   2d
in Cyberpunk 2077

Discover   Feed   Profile

← Tyranny   🔍 ❗

MEDIA	ABOUT	SIMILAR GAMES

ABOUT

You are a Fatebinder, the judge and executioner of Kyros' law, acting under the watchful eye of the Overlords Archon of Justice, Tunon the Adjudicator. Your words shape the lives of thousands. Will you use that power to bring justice and inspire loyalty? Or will you bring fear and cruelty to the beaten people of the Tiers?

INFORMATION

Release Dates
Nov 10, 2016 - Mac
Nov 10, 2016 - Linux
Nov 10, 2016 - SteamOS
Nov 10, 2016 - PC

Developers
Obsidian Entertainment

Publishers
Paradox Interactive

Game Mode
Single player

Genre
Adventure, Role-playing (RPG)

Themes
Fantasy

Discover   Feed   Profile

← Tyranny   🔍 ❗

MEDIA	ABOUT	SIMILAR GAMES

Divinity: Original Sin 2

Genre:
Adventure, Role-playing (RPG), Turn-based strategy (TBS)

⭐ N/A

Earthlock: Festival of Magic

Genre:
Adventure, Role-playing (RPG), Turn-based strategy (TBS)

⭐ N/A

The Witcher 3: Wild Hunt

Genre:
Adventure, Role-playing (RPG), Turn-based strategy (TBS)

⭐ 98 / 100

Discover   Feed   Profile
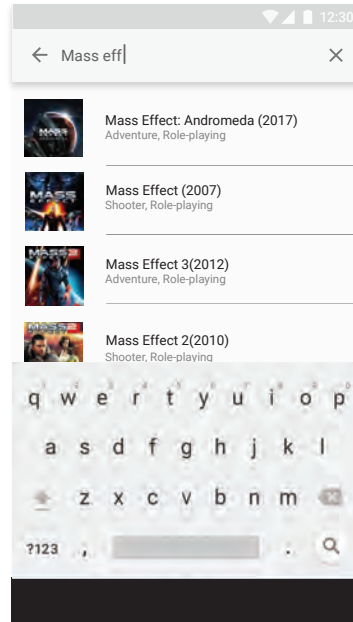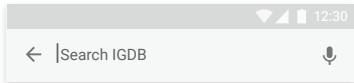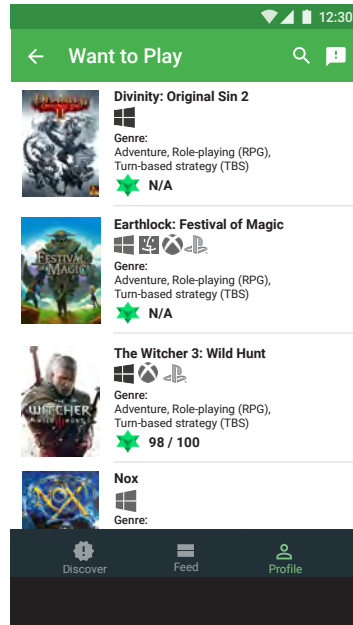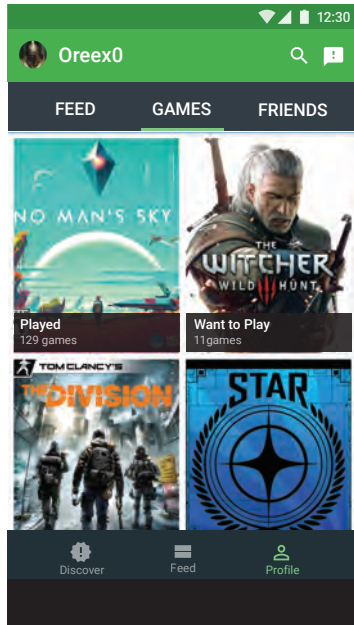
XX

E

Appendix MVP 3 Prototypes

Left screen:
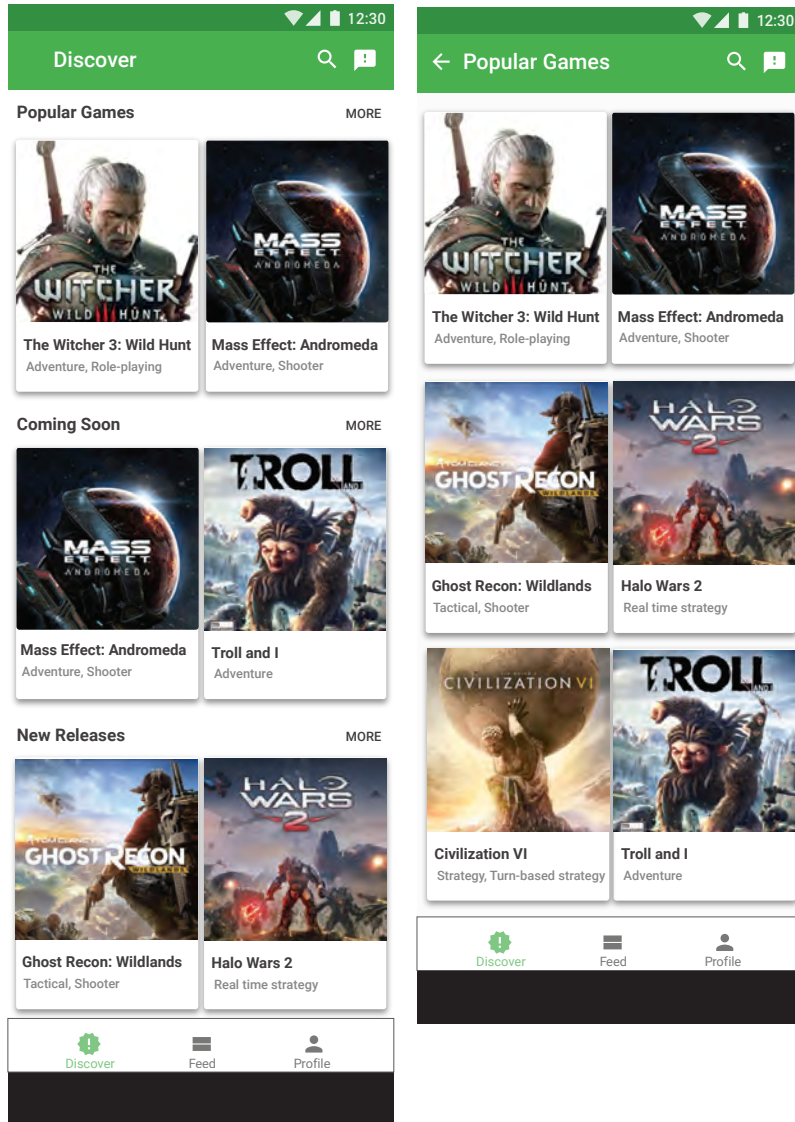
12:30

Oreex0
I play games 'n' stuff

Add Friend

FEED | GAMES | FRIENDS

Kirinriki 2d
Anyone else looking forwards to the Release of the Nintendo Switch?

♥ | 💬 0 | ➤

Ivy1911 2d
in Cyberpunk 2077
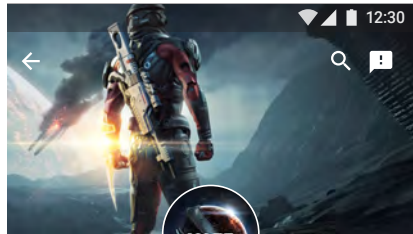4 years waiting for this game!

Discover | Feed | Profile

Right screen:
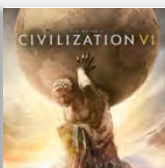
12:30

Oreex0

FEED | GAMES | FRIENDS

Activity Lists

Followed
120 Games

Rated
126 Games

Reviewed
1 Game

Played
129 Games

Want to Play
11 Games

Playing
4 Games

Best Games Ever!
5 Games

Best Multiplayer Games
4 Games

Discover | Feed | Profile

Screen 1

12:30

Mass Effect: Andromeda

3264 followers

Follow

ACTIVITY   ABOUT   VIDEOS   IMAGES   SIMI

Festured Video

Discover   Feed   Profile

Screen 2

12:30

← Mass Effect: Andromeda

ACTIVITY   ABOUT   VIDEOS   IMAGES   SIMI

Festured Video

Mass Effect: Andromeda   a day ⋮

Get Ready for Mass Effect: Andromeda with these PC specs http/:www

♥   💬 0

Mass Effect: Andromeda   3d ⋮

Mass Effect: Andromeda Offers Awesome Player Freedom

♥   💬 0

Mass Effect: Andromeda   3d ⋮

BioWare Details Mass Effect: Andromeda Early

♥ 2   💬 1

Discover   Feed   Profile

Screen 1 (ABOUT tab)

ACTIVITY **ABOUT** VIDEOS IMAGES SIMI

Genre
Adventure, Role-playing (RPG)

Themes
Fantasy

Game Mode
Single player

Developers
Obsidian Entertainment

Publishers
Paradox Interactive

Ratings

N/A
Not yet released

N/A
Critic Score Unavailable

Description
A new adventure awaits in the Mass Effect universe. With stunning visuals and a new galaxy to discover, BioWare delivers the next generation of space exploration.
Commander Shepard's story may be over, but there are many more stories to tell in the Mass Effect universe. Mass Effect Andromeda will be set in a new galaxy, with new characters, new quests and a whole load of new consequence-laden decisions to make.

Storyline ⌃
A new adventure awaits in the Mass Effect universe. With stunning visuals and a new galaxy to discover, BioWare delivers the next generation of space exploration.
Commander Shepard's story may be over, but there are many more stories to tell in the Mass Effect universe. Mass Effect Andromeda will be set in a new galaxy, with new characters, new quests and a whole load of new consequence-laden decisions to make.

Release Dates

Xbox One ⌄

Playstation 4 ⌄

PC (Microsoft Windows) ⌄

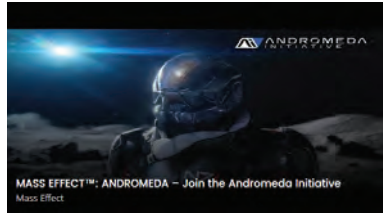| North America | Mar 21, 2017 |
| Europe | Mar 23, 2017 |

Discover | Feed | Profile

Screen 2 (VIDEOS tab)
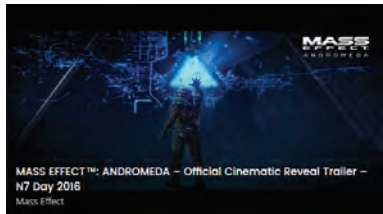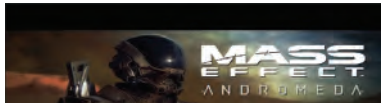
ACTIVITY ABOUT **VIDEOS** IMAGES SIMI

**Videos and Trailers**

Mass Effect: Andromeda (Official)
IGDB.com

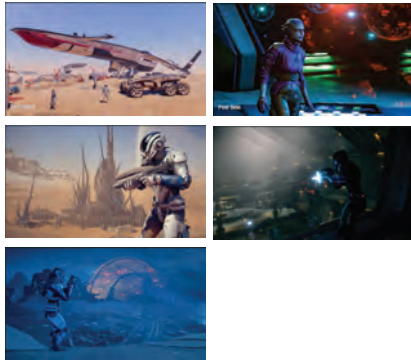MASS EFFECT: ANDROMEDA - Join the Andromeda - Initiative
Mass Effect

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