How to create interaction moments at concerts: Designing user experiences

In collaboration with Stagecast

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II143X Bachelor Thesis

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June 9, 2018
Abstract

The concert industry has been expanded enormously the last couple of years. At the same time as the increasing engagement for concerts, the digital market is growing rapidly. Today during concerts, people use their smartphones to send text messages, connect on social media, take photos, record film clips, and use the flashlight function in a replacement of a lighter. This behaviour may be perceived as a distracting moment and instead moves the person’s focus from the live performance to the phone. The distracting moment can be solved by making an application that makes the interaction more enjoyable through the study of user experience. This can lead to more focus on the music and therefore, enhance the concert experience.

In this project, the work behind the development of designing prototypes is described. The method used in the thesis is the process of Design Thinking. The process is divided into a five-step model: empathize, define, ideate, prototype and test. The result presents three prototypes that are based on digital competitions that interact the audience during a concert experience. At the end of the thesis, a discussion about how to secure a positive outcome of interacting the audience and the artist is presented. The conclusion was that the interactions have good potential to work in a concert environment, but the interactions need to be additionally tested to secure a positive outcome. Another conclusion was that the time before a concert has more scope to make interactions work well and to not distract the users from the live performance.

Keywords: User Experience, Concert, Crowd Experience, Design Process, Design Thinking, Prototype


Nyckelord: User Experience, Concert, Crowd Experience, Design Process, Design Thinking, Prototype
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Chapter 1

Introduction

When going to a music concert, the experience enriches when the artists interact with their audience. With the digital technology developed, many attendees use their phone during the concert experience [2]. Today, there are applications created to make a large number of phone users into an advantage at concerts [44]. For the applications to be efficient and enjoyable, the study of human-computer interaction is required. The goal of this thesis is to discuss a design that takes the high phone usage into something that enhances the experience for both the audience and the artist.

1.1 Background

The concert industry has been increasing enormously the last couple of years [29]. The live performance trend in Sweden is growing and the number of live performances is larger. Therefore, the world stars are more frequently including Sweden in their tours and the most popular live performances sell out within minutes [29]. Live events provide people with experiential qualities, only achievable by being physically present at a specific event. That is the reason why people still spend time and money on going to live events. The value gained by experiencing a specific event also extends to the time before and after the performance [25]. To fully utilize the experience at concerts the artist strives to interact with the audience. Audience engagement can act as an evaluation tool to help the artist understand how a performance is received [7].

At the same time as the increasing engagement for concerts, the digital market is growing rapidly. The statistics show that 85% of the population owns a smartphone [18]. Today during concerts, people use their smartphones to send text messages, connect on social media, take photos, record film clips, and use the flashlight function in a replacement of a lighter. This behaviour may be perceived as a distracting moment and instead moves the person’s focus from the live performance to the phone [4]. The distracting moment can be managed by making an application that makes the interaction more enjoyable through the study of crowd experience, human-computer interaction and user experience, further presented in chapter 2. This can lead to more focus on the music and therefore, enhance the concert experience further.

1.2 Commissioned work

This study was commissioned work by the startup company Stagecast [44]. Stagecast is a company who wanted to change the outcome of phones being a distracting moment during a concert. Stagecast believes in bringing attention to the moment by creating a mobile application that integrates the artist with the audience at live events by utilizing technology. The interactions allows the user to be a part of the show and enhance the user’s experience. In other words, individuals can contribute to the experience itself. The application is managed by a web platform where the interactions can be structured and designed for a live event, making it possible to adapt the application after an artists needs.

This thesis is based on innovative prototypes for additional interactions. The motivation to ex-
plore new ideas was the possibility to develop new interactions and by that extending the Stagecast application. Therefore, the company was interested in an external resource to design prototypes.

1.3 Problem

The problem that had to be solved was designing interactions that do not distract the audience from the experience and rather enhance the experience. This problem led to the research question: how can the interactive moments at concerts be created without distracting the audience from the music and instead enhance the concert experience?

1.4 Purpose

The purpose of this thesis is to describe the work behind the development of prototypes of the potential interactions. This thesis presents prototypes ready to be implemented. The purpose is motivated by the possibility to explore the user experience of interactions implemented in a mobile application.

1.5 Goal

The goal of this work was to design prototypes of potential interactions that give increasing benefits to the Stagecast application. The benefit of using the application can potentially attract more users during the concerts and by that improving the user’s concert experience. On a larger scale, this will intensify the crowd experience during a concert.

1.5.1 Benefits, risks and sustainable development

The benefit of designing additional interactions is the chance to explore user experience in other circumstances during a concert than the already implemented ones. The interactions could potentially make the audience more engaged in the Stagecast application. In its entirety, this can lead to the mobile application enhances the concert experience.

Sustainable development refers to the three aspects of social, ecological and the economic impacts enacted throughout the product lifecycle [51]. This thesis discusses the design perspective and the analysis of sustainable design is therefore essential. Sustainable design refers to the way one complies with the principles of social, economic, and ecological sustainability and it can greatly reduce impacts of products and services. When using an application, the users have the responsibility to connect the information, their behaviour and the environmental and social impact [49]. Therefore, the designers have great potential to design for sustainable behaviour by considering the process of products.

In this work, the sustainable design is focused on the social impact the users have by using the application. There might be a risk of users misusing the application as sending unfriendly or threatening comments to the artist. There can also be a risk inviting people to gamble about money because of the high number of gambling addiction [13]. To meet these ethics and risks, the designer have the opportunity to shape the development of the application and to lower the risks of the application being misused.

1.6 Methodology

A literature study was performed at the beginning of the project to create a deeper understanding of human-centred design and user experience at live events. The literature was found in the databases connected to the Royal Institute of Technology. The databases that were used were ACM, KTH-primo, Scopus and IEEE. The searches were made on English words and were focused on finding articles related to the research questions. The keywords used were User Experience, Usability, Concert, Crowd Experience, Design Process and Prototype. Thereafter, the collected information was critically reviewed.
The literature study was also the foundation of the decisions regarding the methodology of the design process. The method used in the thesis is the process of Design Thinking. The process is divided into a five-step model: empathize, define, ideate, prototype and test. To ideate the project, interviews with the founders of Stagecast were conducted. The interviews were held to identify Stagecast needs, the target group and to obtain knowledge about the previous testing of the application. Prototypes were developed and later evaluated through bodystorming and user testing where data were collected. The theory of the methodology and the work are further presented in chapter 3 and 4.

1.7 Delimitations

There were delimitations set by Stagecast to explore new interactions. In this thesis, the delimitations were determined by conducted interviews with the founders of Stagecast. Due to time limitation, the interactions were restricted to a lottery interaction. A lottery interaction means that users can take part of a lottery and win a prize. From the research phase (see chapter 4), the prototypes were further developed into interactions concerning digital competitions. Another delimitation was that the thesis does not discuss the perspective of the artist regarding the interactions.

Concerning the time limitation, there were additional delimitations. The iterative process was restricted to two iterations and the developed prototypes were not implemented in the Stagecast application.

1.8 Disposition

The following thesis contains a total of seven chapters:

Chapter one is an introduction to the report that explains the background to the project and the problem which should be solved. It also mentions the purpose, the goal, the methodology and delimitations.

Chapter two is an in-depth theoretical background of crowd experience, usability, user experience and related work.

Chapter three is a theoretical background of the choice of methods for implementing the project. The chapter goes through the literature study and the process of design thinking.

Chapter four describes the implementation of the work. The chapter goes through the iterative process to reach the result.

Chapter five presents the results of the implemented work. The chapter follows the same outlines as chapter four.

Chapter six analyses and discusses the outcome.

Chapter seven presents a conclusion and suggestions for future work.
Chapter 2

Theoretic Background

This section covers the theoretic background the reader needs to know before reading further in this thesis. The chapter brings up crowd experience, human-centred design, usability, user experience, and related work.

2.1 Crowd Experience

As technology reaches further, social constructs such as crowds should be considered when designing interactive technology. Today the majority of the interactive design is exclusively single human-centred and are not designed for a crowd as a whole experience. In this thesis, it is discussed how to design prototypes to be used in concerts. Therefore, the basic knowledge about crowd theory and crowd experience is fundamental.

The digital technology has the possibility to shape and reshape the understanding and the performance of crowd experience. In a social context, the experiences are evaluated from shared narratives, how the experience is negotiated among people and how resemblance influences social experiences [40]. Veerasawmy and Iversen [40] state that when designing for crowds, the design should be sensitive to the degree of active participation and the involvement required, because crowds are quite distinct in the social structure.

In this thesis, two main qualities of crowd experience are presented: imitation and emergence. Imitation is to follow as a pattern, model, or example. Emergence is when something is arising as a natural or logical consequence. These qualities [40] are to be kept in mind by the designer when developing the prototypes for the interactions. Imitation and emergence are significant when discussing crowd experience because they induce certain unique experiential qualities [40]. The qualities can emphasize the collective and the feeling of becoming a part of a we-phenomenon [54]. The we-phenomenon was introduced by Sloteridiijk and encompasses the feeling of being a united part of a crowd [42]. Once immersed and engaged in the imitative behaviour the crowd members might be caught by the feeling of becoming a part of something larger than themselves [54].

The process of imitation creates enthusiasm and excitement within the audience [40]. Therefore, it can be said that imitations are a building block to the social dynamic of crowd experience. Tarde [8] describes that crowds are established by the processes of imitation and expressive behaviour that invites, and might even attract people to take part in the crowd activities. Imitation is capable of not only transmitting behaviour, but also promoting and spreading enthusiasm, excitement, emotions, and feelings among crowd members [23]. Participating in the crowd imitating one another’s behaviour can contribute to the experience of being a part of a united whole [54].

The emergent behaviour of the crowd as seen at concerts, where activities as sing-a-longs or gestures, emerge in the crowd through imitation. The crowd is often highly communicative when they sing along with the artist, dance and make gestures and this is a way of showing the artist that the crowd appreciate the concert [40]. The observation of the impulsive behaviour exists because of the emergent dynamic of the crowd. Hence, this may provide crowd participants with a feeling of a being spontaneous and aware [54].
There are not only positive effects of being a crowd. According to Le Bon "Group mind makes people feel, think and act in a manner quite different from that in which each individual would feel, think and act where he in a state of isolation" [6]. Crowds emerge through the existence of anonymity, which allows a decrease in personal responsibility. This makes the acts less rational and more emotional and it is on this account that individuals behave more irrationally in a crowd than they otherwise would behave individually [6]. Historically, examples of the negative aspects of crowds are many, as people getting crushed to death [21] [39] [48]. Designing for crowds must, therefore, be carefully analysed.

The definition of crowd experience and the qualities of imitation and emergence were introduced to understand how the concept of interactive system can be an acknowledgement of the active engagement in creating a vibrant and lively atmosphere at a concert. Technologies can, therefore, support the individual spectator’s perception of the event and give an insight in how an audience can be collectively engaged in interactions with technology and how interactive technology can present spectators with a tool for expression [54].

2.2 Human-centred Design

An interactive system should be accessible, usable and engaging and in order to achieve this, the process should be human-centred [5]. The definition proposed by ISO 9241-11 (2018) of human-centred design goes as "approach to system design and development that aims to make interactive systems more usable by focussing on the use of the system; applying human factors, ergonomics and usability knowledge and techniques" [19]. The term is often mixed up with the term: user-centred design, and the standard enhances that "The term human-centred design is used rather than user-centred design in order to emphasize that the part of the definition also addresses impacts on a number of stakeholders, not just those typically considered as users. However, in practice, these terms are often used synonymously" [19]. Designing a human-centred application is about putting the people and the user first. It is about [5] [24]:

- What people want to do rather than what the technology can do
- Designing new ways to connect people with each other
- Active involvement of the users in the design process
- Iteration of design solutions
- Designing for diversity

The primary discipline contributing to being human-centred in design is human-computer interaction. The study focuses on the interactions between the information technology and humans. Human-computer interaction has historically been focusing on the design of computer technology, but today it covers all information technology design. The field includes various disciplines, such as information technology science, cognitive science and human-factors engineering [17]. There are two main components of human-computer interaction: usability and user experience.

2.2.1 Usability

To acquire a good design it is vital to have competence in usability [5]. When an application has poor usability, the user will leave the application [33]. In this thesis, the theory of usability was used to strengthen and validate the design choice that was made. The definition proposed by ISO 9241-11 (2018) for usability goes as the "extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" [19]. The definition is a quality attribute that assesses how easy a user interface is to use. There are many interpretations of the definition. Nielsen proposes that the definition can be categorized by five components: learnability, efficiency, memorability, errors, and satisfaction [33].

Learnability indicates how easy it is for the user to accomplish basic tasks the first time the user encounters the system.
**Efficiency** indicates once the user has learned the system, how fast the user can perform tasks.

**Memorability** indicates when the user returns to the system after a period of not using it, how easily the user can re-establish proficiency.

**Errors** indicates how many errors the user makes, how severe the errors are, and how easily the user can recover from the errors.

**Satisfaction** indicates how pleasant it is to use the system.

There are two main factors when designing a human-centred system: the needs and the interest of the user. The system should be easy to use and understandable by the user. The user should easily discover what actions that are available and are possible to make. For that reason, Norman states that the system should have a clear conceptual model. The conceptual model provides a true understanding of how the actions affect the system. Essentially, a conceptual model explains how a system works and is necessary when designing interactive user-centred application [36].

### 2.2.2 User Experience

The definition of user experience is not mutually accepted, and there are different theories. Norman and Nielsen has proposed the definition of user experience as "encompasses all aspects of the end-user’s interaction with the company, its services, and its products" [9]. The user experience tends to be industry-focused [17] and an exemplary user experience is to meet the requirements of the customer [9]. The user experience encompasses the user’s perceptions and feelings before, during, and after their interaction with an application. The user experience becomes the first validation if the application provides value, is easy to use and will help the user fulfill their goal. This will determine if a user returns to an application and benefits from the application [46]. This can lead to a successful application.

When comparing user experience to usability, the user experience is an elaborated version of usability in terms of the component satisfaction. Satisfaction refers to how content the user is when using the application. User experience covers a wider aspect of the user’s interaction than the term usability. Usability also has a distinct historical emphasis on performance [35]. The two terms have different goals, but usability plays an important role of making a good user experience. Good usability makes the user feel more conveniently, efficient and comfortably of using the application and also prevent errors made by the user [50]. Therefore, it will enhance the user’s experience and make the user feel satisfied, and then improve the user experience design.

### 2.2.3 Designing Mobile Applications

The size of the screen can be a difficulty when designing user experience for mobile phones. The design choices will have bigger impact of the quality of the interaction because the errors and poor design choices will be more visible [26].

When designing for mobile applications, there are further things to think about because of the small screen. According to designer Babich [31] “The best products do two things well: features and details. Features are what draw people to your product. Details are what keep them there”. Babich [31] also discusses that a frequent mistake is to design the mobile application after the web application. The same content that views on the web application can not take place on the mobile screen by only adjusting the targets and text to smaller. This will lead to excessive content on the screen. To prevent the user from making errors, it is valuable to make targets in a adequate size and choose a legible font size [31]. Another obstacle when designing for mobile application is the amount of typing. Typing on mobile devices is a slow and error-prone process. Therefore, it is best to minimize the required typing when designing for mobile applications [31].

A way to prevent errors is to send feedback to the user. This can be done by highlighting changes and tell the user what actions that have been done. If the actions are not wanted, the user finds out immediately and can adjust the action. The feedback can be done by using micro-interactions. Micro-interactions are an action that do one small task. They can communicate feedback or the result of an action, accomplish an individual task, enhance the sense of direct manipulation and help
the user visualize the results of the actions and prevent errors [30]. A simple example of a micro-interaction is when the user presses a button, the colour of the button changes. By understanding the theory, the design will increase the quality of the user experience.

2.3 Related Work

A wide range of research regarding usability and user experience has been done. But research regarding interactions related to crowd experience appears to be very limited. The work "Banner-Battle" [40] of Veerasawmy and Iversen provides knowledge about the term of crowd experience. The work is based on an interaction during sports events [40]. They created an interactive banner and placed it between supporters on a football field. During the game, the supporters cheering determined how much of the banner was covered in their respective teams colour.

There is not much research focusing on interactions during concerts. The ones that were found were student theses and did not cover this project’s problem. The research problems in these reports were based on if interactions enhance the concert experience. In this report, the focus was on how to develop possible interactions that can possibly enhance the experience. Therefore, the reports gave insights in customer journeys, but did not cover how to develop a prototype.

There are a few developed applications for interactions with crowds, such as Mentimeter [27]. Mentimeter is an application which let the crowd interact and vote with smartphones during presentations. The application shows the results live while the participants are voting with the web-based mobile polling application. Applications that interacts crowds at concerts are often only built for a special moment, artist or concert tour [22][55].
Chapter 3
Methodology

The purpose of this chapter is to present the theory behind the methods and why these methods are used in this study. To see how the method and the work were conducted see chapter 4. Presented in this chapter are the literature study and the design process with all of its phases.

3.1 Literature Study

To obtain a deep knowledge of theories to perform the study a literature study was conducted. The literature was found in the databases connected to the Royal Institute of Technology. The databases that were used were ACM, KTH-primo, Scopus and IEEE. The searches were made on English words and were focused on finding articles related to the thesis research questions. The keywords used were generally: *User Experience, Usability, Concert, Crowd Experience, Design Process and Prototype.* KTH’s Divaportal was also used to provide examples of similar work and to acquire knowledge about valuable sources. The literature chosen had received confirmation in other research reports and based on the fact, they were considered to be of high credibility.

In order to find the most recent information about the development of smartphones, Google was used. Especially because the newest design principles are the most relevant. Google was also used to find answers about user experience and related work. This was considered relevant because the terms have been developing greatly the last years.

3.2 Design Process

The purpose of this thesis was to describe the design process and the work behind the development of prototypes. The methodology of Design Thinking \[16\] was chosen because it is a well-known method that could easily be adapted to this work. Design Thinking is a human-centred approach meaning that in all phases the main actor is the user of the product. The approach makes a deep understanding of the users’ needs and motivates a necessary aspect. There are several categorizations of the process of Design Thinking. In this study, the process will be based on the model proposed by the Hasso-Plattner Institute of Design at Stanford. The term of Design Thinking have historically been developed at Stanford and are today a part of their education \[15\]. The model is divided into five stages: *empathize, define, ideate, prototype* and *test* \[16\].

For the design process to be effective it needs to be iterative and to not have a sequential order of the steps. An iterative process is when gaining the desired result by repeating a cycle of operations. The objective is to bring the result to discovery with each iteration. Therefore, an iterative process is applied to the methodology of Design Thinking. Below follows an explanation of the five-step model, also seen in figure 3.1.

3.2.1 Empathize

The empathize mode is the stage of understanding the users within the context of the project. The empathize mode is a vital stage because empathy is the centrepiece of a human-centred design process. The first stage of the Design Thinking methodology will help to understand the way the
users do tasks and why. In order to be able to do design for the target group, it is necessary to gain empathy for the end-users who will use the application. This can be done by observing, engaging, watching and listening.

**Observe** the users. This will show their behaviour in a real context.

**Engage** with the users by interviews or conversations to get the knowledge about why the users perform tasks.

**Watch and listen** to the users to get the knowledge about how they complete a task.

Following these terms will allow inferring the intangible meaning of those experiences in order to uncover insights.

**Stakeholder Interview**

To perceive the right empathy, a stakeholder interview, or in this case a interview with the founders of Stagecast, can be conducted. The benefits of conducting stakeholder interviews are the visions of the stakeholder and the success criteria identified. The reason to identify the stakeholder perspectives is that it increases the chance of developing a successful prototype. There are three ways of conducting an interview: structured, semi-structured and unstructured.

- **A structured interview** is prepared questions with optional response or prepared alternatives. The structure of the interview is controlled by the interviewer.

- **A semi-structured interview** is when some questions are prepared, but there will also be further matters discovered during the interview stage. This fits when the subject is known and the interviewer knows which answers that are required, but also realize that there are questions that are undiscovered.

- **A unstructured interview** means that the interviewer is not preparing which questions that should be included in the interview. This is an appropriate technique when the topic is not explicit.

In this work, a semi-structured interview with the founders of Stagecast was held. This was the method that was the most accurate because the subject was known, but there was also a place for questions and answers that could broaden the perspective.

### 3.2.2 Define

The define mode of the process is about bringing clarity and focus to the design. It is the stage of defining the challenge based on the clarity from empathizing with the users. The define mode is critical to the design process and the goal is to create a problem statement. It will synthesize the scattered findings into insights and bring a narrowly focused problem that tends to yield greater quantity and higher quality solutions. To define the project, it is essential to look after patterns in the users, their needs and insights. In this work, both the define and the empathize mode were performed by interviewing the founders of Stagecast.
Scenarios

Scenarios can be used to create the right definition of the project problem. Scenarios describe the stories and the context of why a specific user or user group would utilize the interactive system. The scenarios will have goals and subtasks to be achieved. The creation of a scenario is critical for designing a system and for usability testing. Well written scenarios are concise but are answering the key questions [52]. The key questions can be:

- Who is the user? This is defined on the user research, either real users or developed personas.
- Why does the user want to utilize the system? This is defined by the goal of the system.
- What goals does the user have? This is what the user will benefit from using the system.
- How can the user achieve the goal using the system? This is to locate and identify the various possibilities and any potential barriers.

In this work, the created scenarios were the basis on the scenarios attempted for the application that was retrieved in the interview with the founders of Stagecast, further presented in chapter 4.

3.2.3 Ideate

To ideate is the mode of the design process to concentrate on idea generation. The ideate phase is necessary to transition from identifying problems to creating solutions. Ideation provides the help and the source material for creating prototypes and is about widening the perspectives of solutions. The best solutions will be later discovered in the upcoming stages. Ideation can be done by techniques such as brainstorming and building. In brainstorming, there are possibilities to broaden the perspective, as in finding new ideas or build on others’ ideas. In the building technique, in other words, in prototyping, decisions are generated and ideas are encouraged by physically making something [16]. In this work, both the brainstorming and the building techniques were used to ideate the prototypes.

3.2.4 Prototype

The next step is the prototype phase. A prototype is a simple test model that is used by designers and developers to identify requirements before further developing a fully functional system. The goal of developing a prototype is to put ideas to the test and see the outcome before spending time on the final product. With a prototype, it becomes easier to go back and to refine the initial work [28].

There are many kinds of prototypes and they can look and work various ways. Of the highest importance is how they are used by the designer to explore aspects of the future artefact [45]. As discussed by Cao [20] and used in this project, are two different types of prototyping: paper prototyping and digital prototyping. Paper prototyping is simple, fast, cheap, and best used in the early stages of design. As the name indicates, the prototype is drawn on paper. The advantage is that everyone can be a part of the prototyping, regardless the experience and knowledge of developing prototypes from before. The disadvantages with paper prototyping are the unrealistic feeling and the inability to test the prototype as desired. It is recommended to start with paper prototyping to easily correct mistakes.

Digital prototyping is interpreted as realistic because the prototype can be accurately tested. The digital prototyping is done in a prototyping tool. The advantages are that it is flexible and relatively fast, and it is easy to change without redoing the whole prototype. The disadvantage is that the competence the designer needs to have with the prototyping tool.

A human-centred design for developing prototypes is essential when focusing on usability and user experience. It puts the user in focus the whole way through the requirements until evaluation. The step of prototyping exists to test possibilities and to start a conversation with the end-users. Prototyping helps to iteratively find the best solutions suited for the application.
Prototyping Tool

The digital prototyping phase becomes simpler when there is a prototyping tool to develop in. In this work, the prototyping tool used was Flinto. The program Flinto offers to make the screens of the prototypes connected to each other. This is especially important when doing the user testing so that the feeling is more realistic. The program also offers to download the prototype to a mobile phone, which makes it more realistic when performing user testing [12].

3.2.5 Test

In the final mode of the Design Thinking process is the test mode. To evaluate the prototype from a usability perspective, the evaluation can be divided into two different types: inspection methods and empirical methods [1]. Usability inspection is a set of methods that are the basis on expert evaluators analysing a user interface. The inspection is aimed to find problems in the design but also the usability and the user experience of the application with a set of guidelines. These guidelines can range from checking the level of achievement of specific usability attributes to heuristic evaluations concerning predictions of problems related to user interfaces [1]. An inspection method can be used throughout the life cycle, even on specifications that have not been implemented yet [32].

Empirical methods are the basis for capturing and analysing usage data from real end-users. One empirical method is user testing. User testing refers to measuring the performance of users on tasks with regard to the ease of use, the task completion time, and the user’s perception and the experience of the application [11]. User testing is the best way to conduct testing because the real end-users can interact with the application. Analysis of the outcomes can provide useful information to detect usability problems during the user’s task completion [1]. The disadvantage is that it is expensive and it’s time consuming.

The test mode is to get criticism on the created prototypes from the end-users. The prototype makes it available to test on users before going further to implement the application in code. The reason being is to analyse and identify functional demands, usability issues and technical issues. The test exist to [16]:

**Show** the prototype by putting the prototype in the end-users hand without any instructions. It will let the users interpret the prototype.

**Create experiences** with the prototype by creating a scenario in a location that would capture the real situation. If testing the prototype in a real situation is not possible, frame a more realistic situation by having users take on a role or task when approaching the prototype.

**Compare** prototypes by letting the users compare multiple prototypes in the test to give a comparison. A comparison can lead to revealing latent needs.

The number of users during a user test depends on the project. Nielsen recommends testing no more than five appropriately selected users because elaborate usability tests are a waste of resources [34].

There are two main types of user testing: moderated and unmoderated testing [3]. Moderated user testing is when the user is being directly observed by a tester, who follows the user as the user go through tasks. The tester can answer questions and guide the user through the tasks. The disadvantage is that it can be possible to be influenced by bias. Unmoderated user testing is done by prescribing a predetermined list of tasks for a user to complete. The positives are that it is cheap, it is scalable, and do not bias the results. The negative aspects are the lack of a detailed follow-up. To evaluate the test can be done by conducting interviews during or after the test. A questionnaire about the test can also be provided afterwards. To evaluate is a significant part of the test mode. The process helps to ensure that objectives are met, identifies success, identifies problems and weaknesses, and provides information to aid further development.

In this work, testing was also done by a method called bodystorming [41]. Bodystorming is usually apart of the ideation and is a technique of physically experiencing a situation to derive new ideas. The bodystorming requires setting up an experience with necessary artefacts and people to physically testing it. The focus is the way people interact with the environment and the choices
they make while being in it [41]. In this work, bodystorming was used to see how the interactions worked in the intended environment rather derive new ideas.

The process of Design Thinking is non-sequential. That means that after conducting the evaluation it is frequent going back to the other phases of the process to redefine and iterative through any relevant phases. In this thesis, an adapted bodystorming and user testing were conducted. See further how it was done in chapter 4.
Chapter 4

The Process of Developing Prototypes

The purpose of this chapter is to present the work accomplished to reach the result. The different phases of the iterative design process is described. The phases (empathize, define, ideate, prototype and test) have been divided into three sections: the research phase, first iteration and second iteration. The method is an iterative process. Figure 4.1 presents an overview of all the stages in the iterative design process. The process has been restricted to two iterations because of the time limitation.

4.1 The Research Phase

Design Thinking was the chosen method to explore the user experience, as mentioned in chapter 3. First of all, meetings were held with the founders of Stagecast Hedvig Ahlgren and Markus Wallentin to discuss and to bring a perspective to the project. It was important to get to know the company and their vision to be able to start with the next step. The next step was to move into the first phase of the design process which is the empathize mode. To empathize with the users, a literature study was made focusing on customer journeys at concerts.

The next step in creating empathy with the users was to define the problem. To define the problem a interview was conducted with the founders of Stagecast, the asked questions [53] can be seen in table 4.1 and the full interview can be seen in the appendix A. A semi-structured interview was chosen because it created the ability to leave a place for questions and answers to broaden the perspective. The questions were used as a foundation for the project and during the interview, other subjects occurred as well. The steps were performed by merging the knowledge from the empathize mode with the define mode by going back and forth between the phases.

Figure 4.1: The stages of the iterative process, made by the author.
Table 4.1: Questions for the interview with the founders of Stagecast [53].

<table>
<thead>
<tr>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the vision for the interactions?</td>
</tr>
<tr>
<td>How do you define success?</td>
</tr>
<tr>
<td>What are the potential pitfalls?</td>
</tr>
<tr>
<td>What is the target user: primary, role, background, attribute?</td>
</tr>
<tr>
<td>What are the problems the users have that the application solves?</td>
</tr>
<tr>
<td>What is the core value proposition?</td>
</tr>
<tr>
<td>What is the main marketing message?</td>
</tr>
<tr>
<td>Are there any related work?</td>
</tr>
<tr>
<td>What is the preparation to be engaged in the application?</td>
</tr>
<tr>
<td>Are there any frustrations with the current process/application?</td>
</tr>
<tr>
<td>What is missing in the current process/application?</td>
</tr>
<tr>
<td>What is a bad result?</td>
</tr>
<tr>
<td>What do you wish to improve the current process/application?</td>
</tr>
</tbody>
</table>

The next step was to **ideate** the prototypes. The task was to create solutions from the identified problems from the **define** mode. To help with the ideation, scenarios were created. The scenarios were based on the information retrieved from the interview and the literature study on customer journeys. The information helped in the process to **ideate** the project. In this step, the project became delimited to competitions (see further in section 5.1).

A brainstorming session was held to come up with several diverging ideas. The brainstorming was conducted individually and thereby done differently than the theory explains. To start the brainstorming process, related work was reviewed. Throughout the session all the ideas that came to attention was written done. There were no ideas that were rejected. Afterwards, to advice in the process of the individual brainstorming, other parties who are not connected to Stagecast (as colleagues, friends, family) were consulted for inspiration. The parties were asked "**What kind of digital competition would you like to take part of?**". Their perspective helped to increase the ideas.

The building started when a number of ideas of interactions were invented. The building refers to sketch the invented interactions. The sketching was done on blank papers with one colour pencil to make it as basic as possible. During the ideation of the prototypes, the theory behind crowd experience were considered. The two terms imitation and emergence (explain in chapter 2) shaped the ideation, especially during the brainstorming and the building. The terms were studied to take advantage of a crowd intended to use the prototypes. After the sketching the ideation was reassured by looking back on the **empathize** mode and **define** mode. The process was also supported by reviewing related work to see what was currently working. The iterative process between the **empathize**, the **define** and the **ideate** phase made it possible to continue to the first iteration.

4.2 First Iteration

During the first iteration, paper prototyping was performed to concretize the ideas to explore user experience at concerts. When several ideas were transformed into paper prototypes, the ideas were tested and evaluated.

4.2.1 Paper Prototyping

The previous steps in the design process made it possible to delimit which prototypes to move on to paper **prototyping**. The choice of making paper prototypes was made because the interactions would be integrated to an existing mobile application and therefore the focus was on the graphics. The paper **prototyping** was made individually and continued in sketching the interactions in mobile frames on paper. To avoid messy sketches every new idea were made on a new mobile frame, even though it was a minor change. At the beginning of making the paper prototypes the focus was not on sketching the details. The details were first avoided to not mislead the focus on the
functions of the interactions. When the functions of the paper prototypes became more defined there was an increased focus on details.

The inspiration for the process was brought by looking at popular mobile applications and their functions as Quizkampen [38] and Snapchat [43]. The applications inspected were both social media applications and applications that provides competitions. The inspection of these applications discovered what functions that currently works and satisfying design choices.

When the paper prototypes were done a presentation was held for the founders at Stagecast. The decision on which prototypes to continue with and to test was based on feedback from the founders. The decision was mutually agreed.

4.2.2 Test and Evaluation

The test was a part of evaluating the crowd experience. An adapted bodystorming was conducted to perform the test. Bodystorming is usually a part of the ideation, but in this work it was used as a test (see 3). The test was held to see if the interactions maintained the ideal when testing them in a concert experience and how imitation and emergence played out. The focus was to explore if the potential interactions could work in a concert environment. The test was done to evaluate the experience of the test subjects and to be capable of making decisions regarding the next step of the prototypes.

The test was conducted by gathering test subjects. In this case, seven participants were gathered. Three of the participants had used the Stagecast application before. The remaining part of the participants had not used the application and matched the target group (see the result in 5.1). The combination constructed a good mixture of participants.

Due to not having the ability to test in a real concert environment, a fictive environment was set up at the Stagecast office. The fictive environment was a recorded concert seen at a large television screen. The crowd was made out of the test subjects and the tester. As during a real concert the crowd stood in front of the television screen and were offered beverage. The participants got instructions to imagine themselves in the scenario during a concert.

A decision was made to not use any prototypes of the interactions during the test. This was mainly to focus on the user experience of the test subjects in a concert environment and to remove the attention from the graphics. Also, the decision was made to avoid distractions that would take focus from the experience.

During the test, the interactions were presented one by one to the test subjects. After each presentation, the participants had to accomplish the task. Google forms [14] were used because the participants were known to the format. To enhance the realistic feeling the participant with the best result of the task won a prize. The given tasks were (see result 5.1 to understand why):

Send a greeting to the artist. The task was to send a personal greeting to the artist. Every participant got the instructions to film themselves with their smartphone for twenty seconds.

Take a quiz. The task was to take a quiz about the artist. Every participant received a Google form [14] to fill in what they believed were the right answers.

Bet on the setlist. The task was to bet on the setlist that would be played during the concert. Every participant received a Google form [14] to fill in which songs they believed would be played. To be apart of the competition the participants had to bet with a fictive amount.

Take the best photo. The task was to take the best photo during the concert. The participants had only one shot the get the best picture.

In the end, the participants received a questionnaire to evaluate their experience. The questions asked can be seen in table 4.2. The evaluation was the foundation in which interactions and prototypes to take into the second iteration.
Table 4.2: Questions for the body storming.

<table>
<thead>
<tr>
<th>Questions (on a scale on 1 to 5, where 1 is 'strongly disagree' and 5 is 'strongly agree')</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much did you like the &quot;greeting&quot; competition? Why?</td>
</tr>
<tr>
<td>How much did you like the &quot;quiz&quot; competition? Why?</td>
</tr>
<tr>
<td>How much did you like the &quot;bet&quot; competition? Why?</td>
</tr>
<tr>
<td>How much did you like the &quot;photo&quot; competition? Why?</td>
</tr>
<tr>
<td>Do you think competition is a good way to interact with the audience at a concert?</td>
</tr>
<tr>
<td>Would you participate in a competition at a real concert?</td>
</tr>
</tbody>
</table>

4.3 Second Iteration

During the second iteration of the design process, the number of ideas was reduced by the results in the first iteration. The interactions were made into digital prototypes and were later on tested and evaluated by user testing.

4.3.1 Digital prototyping

The next prototype iteration was digital prototyping. The prototyping process was based on the two results from the previous iteration (see result 5.2). The first result was the paper prototypes and the second result was the evaluation of the bodystorming.

The digital prototypes were made in the program Flinto. The mobile screens in Flinto can be linked together and create transitions between the screens. It is also possible to create behaviours in Flinto. The behaviours can change an action of a component, as a micro-interaction. Both of these implementations make the prototypes more realistic.

The process focused on the prototypes one by one. During the digital prototyping process there was more time spent concentrating on the design and details in comparison to the process of paper prototyping. The focus was on implementing micro-interactions to easily send feedback to the user on what actions that have been made in the application. As mentioned in chapter 2, micro-interactions can be a large part of the user experience, especially if there is a small screen to adapt to. To create a variety of choices, several screens were designed for the same action.

As in the previous iteration, inspiration was gathered from popular applications, both social media platforms but also applications made for competitions and gambling, as Quizkampen and Snapchat. When the digital prototypes were done, the next step was user testing.

4.3.2 Test and Evaluation

In the second iteration, user testing was performed to evaluate the digital prototypes. The result from the first test showed that the ideas worked in a concert environment. Therefore, the test during the second iteration focused on the usability and the user experience of the functions in the prototypes. The test was performed to identify any obscurities and to evaluate the functions. During the test it was important that the test subjects understood how to perform certain tasks.

For the second iteration, the user test was performed on five persons. It was decided that five participants were sufficient, based on the theory of user testing (see chapter 3). The main criteria for the test subjects to participate were that they have not seen the application before. Otherwise, the technical competence was varied. Four persons fitted in the target group and the fifth person did not. The fifth person was older and did not have the technical skill as the others. The test was conducted on the fifth participant because they had less digital knowledge to guarantee the usability and the user experience of the digital prototypes.

The user testing was performed through the program Flinto. Flinto makes it possible to test the prototypes in a mobile application, which makes the user testing more realistic. There was no special place for the user testing, but one criteria was a lively atmosphere to cooperate with a concert environment. The participants also got instructions to imagine themselves in the
scenario before or during a concert.

The user testing was performed as a moderated testing on one participant at a time. During the test the participants received a number of tasks that they should complete. The tasks were given one by one. The moderator and the test subject communicated during the user testing. The given tasks were:

**Send a greeting to the artist.** The task was to send a personal greeting to the artist. Every participant got the instructions to enter the competition and follow the instructions provided in the prototype.

**Take a quiz.** The task was to take a quiz about the artist. Every participant got the instructions to enter the competition and follow the instructions provided in the prototype.

**Bet on the setlist.** The task was to bet on the setlist that would be played during the concert. Every participant got the instructions to enter the competition and follow the instructions provided in the prototype.

When the tasks were completed, an unstructured interview was held between the test subject and the moderator with no predetermined questions. The interview was held to go through the steps to see if there were any complications to execute the tasks, any additional reflections and their impression of the prototypes. When the second iteration was completed, the redesign of the digital prototypes was implemented to reach the final product. The evaluation and the conclusions from the user testing were the foundation of the redesign.
Chapter 5

Result

In this chapter the result of the iterative process is presented. The chapter follows the same structure as the chapter of the process of developing prototypes: the research phase, first iteration and second iteration. Lastly, the redesign of the prototypes are presented.

5.1 The Research Phase

There were two main results from the interview with the founders of Stagecast and the literature study on customer journeys. The founders had valuable information regarding the users and the user experience of the current Stagecast application. The first result was the determined target group. The second result was problems related to the current Stagecast application. The target group were defined to persons between 15-25 years old, used to digital technology and prefers the genre of pop and house music. There were three main problems identified that a small number of people had with the Stagecast application:

1. The user was not comfortable to use the application
2. The user did not understand how to use the application
3. The application was time-consuming

The target group and the three problems were considered carefully when delimiting the project. First, the project was delimited to three interactions. Then the project was decided to be delimited to interactions regarding competitions. The decision was made after the empathize mode, the define mode and the ideate mode. The most uninteresting time during a concert was established in the empathize mode and the define mode to be the waiting before the artist enters the stage.

In the ideate mode after the building phase, the sketches were discussed with the founders. Figure 5.1 displays an example of the building technique. During the building technique, many sketches were drawn. It was determined that a few ideas were too complicated to continue with. The interactions were determined to four competitions: take a quiz, send a greeting, bet on the setlist, and take the best photo:

The Quiz competition: compete in taking a quiz about the artist.

The Greeting competition: compete in sending a personal video greeting to the artist.

The Bet competition: compete in speculating on the setlist of the concert.

The Photo competition: compete in taking the best photo during the concert.

The first three competitions (quiz, greeting and bet) were intended to be performed before a concert and the last (photo) was intended to be performed during the concert. The greeting competition was also intended to be executed on the same day as the concert, in other words, the users have the whole day to execute the competition. The decision of the four competitions made it possible to go further into the first iteration of prototyping and testing.
5.2 First Iteration

The results from the first iteration includes the paper prototypes and the evaluation of the user testing conducted in a group. In this section, examples of the paper prototypes and the evaluation of the group test are presented.

5.2.1 Paper Prototyping

The paper prototypes worked as a component to reach the result for the digital prototypes. As mentioned in chapter 4, the paper prototypes were made on blank paper with a one colour pencil. Examples of the paper prototypes can be seen in figure 5.2. The paper prototypes were made for all of the competitions presented in section 5.2. The competitions were sketched with different versions of the screens.

5.2.2 Test and Evaluation

The result of the bodystorming was the participants’ user experience. The test was unmoderated, meaning the testing was done by prescribing a predetermined list of tasks for the user to complete (see section 4.2).

There were four interactions that were tested where every interaction was a competition. After the test, the participants received a questionnaire to evaluate the experience of every competition. The questions can be seen in table 4.2 and the result of the questionnaire can be seen in figure 5.3. The result of the questions were based from a scale on one to five, where one was ‘Strongly disagree’ and five was ‘Strongly agree’. The test subjects’ opinions of the competitions can be seen in appendix B. Based on the result from the bodystorming (both from the figure 5.3, the comments about the interactions in appendix B and participants actions during the bodystorming) the
decision was to move on with the first three interactions send a greeting, take a quiz and bet on the setlist to the second iteration.

5.3 Second Iteration

The result from the second iteration was the final prototypes. The result of the second iteration includes the digital prototypes, the test and evaluation and lastly the redesign. The redesign evolved into the final prototypes.

5.3.1 Digital Prototyping

The digital prototypes were made in the program Flinto [12]. The design was made by the author. The colours and the font were chosen from the existing Stagecast application. The prototyping was made on three competitions: send a greeting, take a quiz and bet on the setlist.

The Quiz competition can be seen in figure 5.4. During the competition, the user gets asked several questions about the artist. The participant with the right answers wins a prize.

The Greeting competition can be seen in figure 5.5. The user sends a personal video greeting. The user can retake the video as many times as they like. When the user is happy with their contribution, they send their submission. The winner will be decided by the artist and receives a personal greeting from the artist.

The Betting competition can be seen in figure 5.6. The user speculates on the setlist that will be played during the concert. In this case, the user should speculate on which five songs the artist will play first during the concert. The user bets a small amount of money and can potentially win more money.

The digital prototypes were later tested and evaluated with user testing.

5.3.2 Test and Evaluation

The result of the test in the second iteration was how well the test subjects understood the prototypes. The test was performed moderated which means the users got followed in every step during the test. When the users performed the test, they could speak and ask questions. From the five conducted user tests there were some tasks that were agreed upon being unclear. The unclear functions were:
(a) The front page  
(b) An example question  
(c) With a given answer

Figure 5.4: Digital Prototype: example from the Quiz competition

(a) The front page  
(b) Record a film clip  
(c) Feedback to the winner

Figure 5.5: Digital Prototype: example from the Greeting competition

(a) How to pick songs  
(b) Five songs picked  
(c) Choose the amount to bet

Figure 5.6: Digital Prototype: example from the Betting competition
The Quiz competition: there were no tasks that were unclear. A suggestion was to give feedback to the users how many who have conducted the quiz.

The Greeting competition: it was a difficulty to understand that it was a video the users had to record. A suggestion was to have a button to retake the video.

The Betting competition: it was unclear the users were supposed to bet their own money. The prototype was missing a button to go back after the chosen songs and there was no feedback on how much the bet was worth. A suggestion was to choose the order of the songs before submitting the answer.

When the testing and the evaluation were done, the feedback was taken into consideration and the changes could be made to reach the final prototypes.

5.3.3 Redesign

In this section, the redesign of the test and evaluation is presented. The redesign is divided into each competition and there is one example per interaction of the redesign.

In the Quiz competition: there were no major changes to the interaction. From the user testing, the redesign enabled the possibility to give feedback on how many participants who have taken part in the competition. The redesign can be seen in figure 5.7. The time counts down to when the winner of the competition is presented.

In the Greeting competition: the changes made in the prototype were to refine the text on the front page to a video greeting and to add a button to retake the video. The changes of the button to retake the video can be seen in 5.8.

In the Betting competition: the redesign enabled a clear text on the front page about the competition and feedback was added to how much the bet was worth at the end of the interaction. In figure 5.9, the screen is displayed of the speculated songs. The redesign enabled a button to go back and a function to drag and drop the order of the songs.

The redesign of the prototypes led to the final prototypes. The final prototypes were later presented for the founders at Stagecast.
Figure 5.8: Redesign: the recorded video clip in the Greeting competition

Figure 5.9: Redesign: the speculation of the setlist in the Betting competition
Chapter 6

Discussion

The results argue that there is a possibility to create interactive moments that can enhance a user’s concert experience. The goal was to understand how to not distract the users from the music experience during concerts. In this chapter, the result is discussed.

6.1 Creating Interactions

From the result in section 5.1, the result partly indicates how to create interactive moments. The results were carefully remembered during the execution of the design process. The interpretation of the result can be divided into the user experience of executing the competitions and the user experience of the application. The result in figure 5.3 indicates the enthusiasm of taking part of a competition before or during a concert. The result also strengthens that an interaction before the concert is better, both considering the time-consuming and having the interaction distract the user from the concert experience. A significant aspect is that the interactions were based on the result from section 5.1 on customer journeys. Three out of four digital competitions were therefore developed to be used before the concert and this aspect effects the results.

The decision of testing the crowd experience was the foundation of the final result. This project shows that it is necessary to test if the experience works in an intended environment and in a group formation. Testing the project in a real environment, or in this case, a fictive concert environment, reassured that the project would work to some degree. Veerasawmy [54] states that the qualities of imitation and emergence can empathize the collective and the feeling of being part of something larger. In this project, seeing other persons taking part of an interaction created enthusiasm and excitement about wanting to take part of the interaction themselves. Therefore, the bodystorming also reassured a positive outcome of the crowd experience. If the test had not been done, the result could only be granted from one person’s opinion, which does not construct a crowd and is thereby not sufficient.

The result of the test and evaluation in section 5.3, indicates that the developed prototypes were easy to understand and to use. The result from the user testing also showed that five participants were sufficient based on the theory from Nielsen [34]. The identified defects became repetitive. The only deviated result was when one of the founders of Stagecast performed the user testing, who was more critical and could identify additional defects. Therefore, the usability and the user experience of the interactions in the mobile application are not the challenges. The challenge focuses on if the interactions would work in a real concert environment. The reason for the result could be that there is more research on how to create mobile applications that have good usability and user experience than there is research about crowd experience. Especially, the main factor, how to create interactions for crowd experiences.

6.2 The Potential of Each Interaction

The interaction that was identified with the most potential was the Quiz competition. The Quiz competition was the one with the most positive feedback from the test segments in the process.
This was based on the answers that the participants thought it is always fun with a quiz and to get new information about the artist. A quiz is a familiar way of competing and one can argue that it is easier to promote a competition if the participants are known to it from before. The required effort from the participants was less in comparison to the other competitions and this could lead to that the competition is less time-consuming. Also, the participants know how to conduct the competition and, therefore, meets the problems that were identified in the research phase (see result 5.1). The Quiz competition was intended to be executed before the concert starts. The most boring time during a concert was identified to be right before the concert, which can thereby lead to an improved experience if the competition is executed at that time. Executing the competition before the concert also leads to not distract the users from the live performance.

The Greeting competition was the most selective competition regarding the participants. The interaction was the only one which communicated with the artist. The competition can be interpreted as uncomfortable to execute because it depends on filming yourself. From the test in the first iteration, this competition was the only one who got the answer that a participant would probably not execute the competition in a real context. The result shows that some of the test subjects would do it. One can argue that if tested with a larger crowd and with participants that are devoted fans, that they would appreciate the interaction greatly. There are not many ways of interacting with an artist for the fans. The interactions that exist is commenting on social media, but the personal video greeting can open a different way of communicating.

The Betting competition was one competition that was dependent on how many others who takes part in the competition. That is because the more who competes, the more money the participants will have the chance to win and will, therefore, tempt others to compete. To exploit the quality of imitation (see chapter 2), the feedback of how many who takes part of the competition is vital and will create larger enthusiasm.

6.3 The Iterative Process

The methodology of Design Thinking was well applicable to this project. The research phase created an understanding of the users and the problem of the project. The iterative process made it possible to perfect the project as it proceeded. The research phase created target group insights and the identified problems. The iterative process with the empathize, the define and the ideate mode prevented the project taking a wrong focus. Following the steps made the project more efficient. The outcome became partially expected of the first and the second iteration by having the steps determined. The purpose of the process of prototyping and test is to make sure the project meets the goal, to give increased benefits to the Stagecast application. The prototypes made the ideation of the solutions concrete and thereby created a feeling of the interactions. The test was to explore if the prototypes operated both in the intended environment but also how the application was interpreted.

The participants who conducted the testing were all positive to find a way to interact the audience with the artist. The result would have differed a lot if the ideas and prototypes were tested on participants who were negative to interactions during concerts. To delimit the project, these assumptions were made and therefore, the test subjects were picked if they had a positive attitude about interactions or not. If the project would be done differently, the main changes would be to include test subjects with a more negative attitude to interactions during concerts.

All the steps of the method were beneficial because valuable results were found in every step and in every iteration. The main task that was missing in the method was another iteration. The result would be more assured if the final prototypes could be tested during a real concert where the participants are the majority of the audience. In this project, the tests are only tested separately which do not guarantee that they would work together. One could also argue that the iteration of the tests, both separately and together, should be executed as long as they are valuable and errors are identified. Due to the time limit, this could not be completed.
Chapter 7

Conclusion

This thesis presents three prototypes that connects the audience with the artist in connection to a live performance. The expectation of implementing these interactions is an improved user experience. The conclusion can be drawn from the bodystorming and the user testing that the results indicate that the competitions will not have a negative impact on the user experience and thereby will not distract the users from their music experience.

7.1 Benefits and Drawbacks

The benefits of the interactions have the possibility for the Stagecast application to develop. The competition of the video greeting opens up a communication between the artist and the audience. Today the communication between the artist and their fans is restricted. Therefore, the communication can give enhancing experiences for the fans and create a new way of communicating. For the application, this can lead to wider usage of the application before a concert.

The drawback of this project was the number of iterations conducted. If this project would have been performed differently, more iterations would be accomplished. The interactions should be tested in a concert environment to secure a positive outcome. The test did not show if the competitions would work with a larger group of people, only that they have good potential to do so. Especially regarding the Betting competition that is dependent on how many participants who take part of the competition. The target group was set to persons between 15-25 years of age. If Stagecast wants to extend their target group, new tests need to be conducted on the desired target group.

Designing for crowds is difficult. The imitative and the emergent behaviour are hard to predict. The interactions need to be tested excessively to draw a conclusion if an interaction would work in the intended environment. In this thesis, the conclusion was that the interactions have good potential to work in a concert environment, but the interactions need to be additionally tested to secure a positive outcome. Another conclusion was that the time before a concert has more scope to make interactions work well and to not distract the users from the live performance. However, this conclusion was based on that three out of four interactions were developed to be used before the concert. The time before the concert includes the range of the whole day to minutes before the concert starts.

7.2 Future Work

There are several ideas to further improve the prototypes. As mentioned, the first step would be to generate other iterations, both for the crowd experience in the intended environment and the user experience of the digital prototypes. The next step would be to implement the competitions in the current Stagecast application. When the implementation is done, the competitions can be tested during a concert. This would be the ultimate test to see if the competitions are appreciated. There is also an opportunity to explore other solutions for the competitions than the invented ones. The solutions could be to add a gallery for the video greetings so that the users are able to see everyone’s contributions. Another solution can be to, instead of betting money, send feedback
to the users who speculated on the right song during the concert as making the smartphone flash. In summary, the prototypes have greatly potential for future work.
References


Appendices

A  Interview with the founders of Stagecast

The interview was conducted with the founders of Stagecast Hedvig Ahlgren and Markus Wallentin. The questions asked were [53]:

1. What is the vision for the interactions? We believe enhance here and now, to utilize the technology, create a smart way of using the smartphones during a concert and create a community.

2. How do you define success? The participation of using the application, the value of using the application for the users, excited users and enhancing the experience.

3. What are the potential pitfalls? That the application is distracting, there are limitations with smartphones, not enough participators using the application.

4. What is the target user: primary, role, background, attribute? It is a young target group, preferable 15-25 years of age, likes pop and house music (for instance Zara Larsson) and used to the digital technology.

5. What are the problems the users have that the application solves? A wish is to help the user go from a passive spectator to an active one and engage in the concert.

6. What is the core value proposition? To enhance the experience without too much of a digital distraction.

7. What is the main marketing message? Be apart of the light show and get exclusive material.

8. Are there any related work? Their strengths and weaknesses? Xylobands - smooth and the users do not have to do anything. But the product is limited and expensive. Festival applications - good with information at one place and to have tickets in the application. The Kent application - it worked well during the light show and the choir showed how to hold up the smartphone.

9. What is the preparation to be engaged in the application? To download the application on their mobile, go in and click 'interested' at the event in the application, allow notifications and to use the application during the concert.

10. Are there any frustrations with the current process/application? Hard to get all of the audience to download the application and to engage. Hard to keep the users after the concert.

11. What is missing in the current process/application? It's missing social functions, more interactions and more input from the artist.

12. What is a bad result? When a small percent downloads the application and sometimes bad engagement during an interaction.

13. What do you wish to improve the current process/application? That all of the participants or the majority downloads the application and that the users use the application after a concert as well.
B Test and Evaluation during the First Iteration

After the bodystorming was done everyone who participated got a questionnaire to evaluate their experience. The scale was from 1 to 5, where 1 is 'Strongly disagree' and 5 is 'Strongly agree'. The answers of the evaluation can be seen below.

How much did you like the "Greeting" competition? Why? Answers: "(2) It was something I wouldn’t do normally", "(5) Nice way to ‘talk and meet’ the artist", "(3) I would probably not have done it if I was not a superfan of the artist", "(4) Fun to be creative", "(4) Hopefully a way to connect with the artist ", "(4) Interesting social interaction with the artist ".

How much did you like the "Quiz" competition? Why? Answers: "(4) I really wanted to google the answers", "(4) It was fun to think about different Beyoncé facts and to see what you knew", "(5) I love a good quiz and its nice to get new information about the artist", "(4) Fun! I really wanted to win. Would have google the answers", "(4) Nice to see how much of a fan you really is", "(2) Not too much fun since most questions are googlable", "(4) Trivial questions asked"

How much did you like the "Betting" competition? Why? Answers: "(4) Fun with something you really don’t know, it feels like playing for the same odds", "(4) Betting is fun and it was an engaging competition. I find it engaging to think about what songs will be played", "(4) I wouldn’t bet on money I think, but fun", "(4) Nice if you like the artist. I thought of the songs that came at the beginning of the concert to see if I was right", "(4) Could be fun doing with friends at the concert", "(4) Fun to gamble and guess, brings some staket into it", "(3) Tricky song list to guess to"

How much did you like the "Photo" competition? Why? Answers: "(4) Definitely more fun if it had been alive, but wondered if it would have been better if it had been for a shorter time? Now you would like to take the photo asap, but it would have been for 2-3 minutes (shorter) so you might have thought less and been more radical", "(2) Again as the video competition I don’t usually upload photos I take. I use them to remember what I did", "(4) Fun way to compete", "(3) I would probably take a photo early in the concert to participate in the competition. I would take the photo quite quickly to concentrate on the concert afterwards", "(5) Creative and nice to capture the greatest moment of the concert", "(3) Hard to say since it wasn’t live, but I reckon it was decent perhaps not with just one winner", "(3) Challenging task taking the pics"

Do you think competition is a good way to interact with the audience at a concert? Answers: (0) 1, (0) 2, (0) 3, (3) 4, (4) 5

Would you participate in a competition at a real concert? Answers: (2) Yes, (0) No, (2) Depends on the price, (3) Depends on the competition