“This euphoric feeling that I get”

A qualitative mapping of concerts and how to augment them

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Abstract

Today many people experience that their phones are taking them out of the present. This is the case at concerts too where some perceive them to be a distraction from the actual experience. This paper maps what the concert experience consists of from a qualitative perspective and then uses the same phones that people perceive to be distracting for making them more engaged in the event.

Keywords: Interaction Design, Service Design, Human Computer Interaction, Concerts, Crowd Experience, Qualitative
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Charlie Forsgren
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1 Introduction

When going to a music concert today many attendees perceive phone usage as disconnecting and detracting from the experience. It is a commonly held view that concertgoers do not experience the concert fully when viewing the event through their phones. Stagecast is a startup company based at the Royal Institute of Technology (KTH) interested in how phones and other technologies instead can enhance the concert-going experience. With this goal in mind they have developed the concept of moments which refers to interactions through which the concert going experience can be made more engaging. To develop an understanding of why people attend concerts and how uses of technology can facilitate those aspects is what this work aims to do.

1.1 Problem Statement

Stagecast is interested in exploring how the concert experience can be made more engaging. This work will map the concert experience and suggest where it can be enhanced and evaluate a smartphone-based solution toward that goal. The solution should be technically feasible and presented as a prototype on the intended hardware platform, namely smartphones. Thusly the work should answer:

- What does a concert-going-experience consist of?
- How is a concert experienced?
- Could technology contribute to the experience and facilitate engagement?
- What would such a prototype look like?
- Does the prototype contribute to the experience and does it facilitate engagement?

The solution should also relate and expand upon theory of crowd experiences which is a burgeoning aspect of HCI (Human Computer Interaction).

1.2 Scope

This project will ideate and develop proof of concepts for this smartphone-based solution to improve the concert going experience. To do this relevant literature regarding crowd experiences will be considered and expanded upon, methods for creating HCI prototypes will be used, and implementations in smartphones will be developed and evaluated.
2 Background

This section will cover current research about crowds and how they are handled in HCI, introduce psychological work relating to the feeling of engagement, and lastly show how similar work uses technology in making experiences for crowds.

2.1 Crowds

An audience is a type of crowd and crowds are a subject that can be approached from several angles. It is common to read about crowds in the context of sociology with the aim to explain riots, hooliganism and other conflicts (Prati & Pietrantoni, 2009; Baker, 2012; Whannel, 1979). If the experience of being in a crowd is mentioned in these texts it is with the aim to mitigate the (social) problems that come from crowd behavior (Whannel, 1979; Reicher, 1996; Borch, 2006).

Veerasawmy and Iversen (2012) says that in the later half of the 20th century an approach to crowds emerged explaining crowd behaviours as being an effect of each individual's goals and behaviors (Berk, 1974; Blumer, 1951; Borch, 2012; McPhail, 1991). These citations all try and make sense of the social aspect and do so by focusing on individuals and their goals. They make a case for this being an American approach while explaining that a European approach is more social by focusing on phenomena such as imitation of different sorts while suppressing individual rationality in favor of impulsivity (De Tarde, 1903; Le Bon, 1897).

Veerasawmy (2014) argues that sociology is mainly interested in the behavior of troublemaking crowds and not of the experienced qualities of participating in a crowd. He further argues that the history of HCI has been a rational and utilitarian exploration examining where computation can help solve problems. This has affected how crowds are approached in HCI where the vast majority of research see them as resourceful entities collaborating on reaching a goal. The social structures have been treated as the same whether they have examined groups at a workplace or groups in public spaces. If crowds are considered in HCI it is in areas such as crowdsourcing not taking interest in people being co-located (Veerasawmy & Iversen, 2012).

Veerasawmy and Iversen (2012) give attention to crowds in co-location and the behavior emerging from that. In their study they aim to inform the design process by distinguishing crowd behaviors from other group behaviors. In so doing they highlight the qualities imitation, emergence, and self-organization.

Imitation is a central feature of the crowd experience since it promotes arousal and excitement (Veerasawmy & Iversen, 2012). To join a crowd often means that you have a certain responsiveness and willingness to partake in the behaviors that emerge inside the crowd (De Tarde, 1903). These behaviors can stem from the contagious way emotions such as excitement and arousal spread through the crowd.

This imitation also facilitates invention of new behaviors that are described as emerging from the crowd interaction (Veerasawmy & Iversen, 2012). An example of what emergence is when a crowd invents a new chant. This is a product of the extreme sociality of the crowd which should not be seen as a finalized entity but one that undergoes changes from which these behaviors can emerge.

The crowd is also self-organizing. This organization is not dependent on a leader instead every crowd participant can invent behaviors that gets imitated resulting in the emergence of behaviors. It is in this sense that crowds can be said to be self-organizing. For example at sporting events crowds often dress up in the same colors and partake in collective singing and dancing. Veerasawmy and Iversen (2012)
stress that these qualities, listed above, are not separate phenomenon but are three related aspects that can be used as analytical tools.

In this work the concert crowd will be seen as a co-located group of people explored mainly through the American perspective by focusing on the experience of the individual having people explain their experience through different types of interviews. The evaluation will be done in a social setting enabling some observations relating to the properties of crowds put forth by Veerasawmy and Iversen (2012).

2.2 Engagement

Much of the literature about engagement in HCI is about how to get users engaged with an artifact or product. O’Brien and Toms (2008) aim to deconstruct the term engagement related to people’s experiences with technology. They look at what engagement means in several technological contexts and present a multidisciplinary literature review focusing on how technologies can be made more engaging. Later this resulted in a questionnaire for evaluating how engaging specific products are during user tests (O’Brien & Toms, 2010).

Battarbee and Koskinen (2005) sees the above an individualistic focus of older HCI models. Through their study on how people use MMS (multimedia messaging service) they expand upon these models to include what social interactions bring about “co-experience” which is what they call experiences that are created with others. They argue that to regard something as an experience at all often comes from communicating it to someone else. Implicit in communicating an everyday experience is that it carries some importance. This way of “lifting an experience” is also the first addition of the model. Recipients can then either reciprocate or reject the experience. Reciprocation can happen by having others bring up similar experiences or by simply offering a sympathetic response while rejection happens when disinterest is communicated by for example changing topic or not responding. They argue that interactive technology can facilitate a social co-experience and that their outlined guidelines give more attention to interactions with more social and emotional content than what other common HCI frameworks offer.

This report distinguishes itself from the interests exemplified by O’Brien and Tom above, making people engaged in the technology. Instead what is interesting here is about how people can be made to feel engaged in the concert experience with aid from technology. Holm (2012) highlights this ambivalence in the word engagement and moves to a definition more useful for this work when pointing to a psychological study by Kahn (1990). The results from the study is a definition of engagement and disengagement where they are seen as endpoints of a spectra in the psychological research context of person-role dynamics. The study is about how people become disengaged in work moments and how that makes them act and feel. Often when people become disengaged they fall back on ideas about what their role is, acting on a sort of auto-pilot where they are not thoroughly expressing themselves emotionally, become cognitively unvigilant, and physically uninvolved (Kahn, 1990).

Schaufeli et al. (2006) is on a similar track when they measure work engagement in a questionnaire. They divide the concept into three constituents, being vigor, dedication and absorption. Notably their definition is less social and more work focused, placing burnout at the opposite end of being engaged.

When a person is engaged in the moment their selves are within the role. This is seen through them becoming cognitively vigilant, physically involved and empathically connected to others (Kahn, 1990). This takes into account levels of social influences - individual, interpersonal, group, intergroup, and organizational - that shape moments related to role performance determined by engagement and
disengagement. These are aspects plausibly affecting the concert goers experience too which is why the interviews (see Appendix A) are influenced by probes from Khans study.

2.3 Designing for Crowds

Reeves et al. (2005) study and try to taxonomize features of HCI for performers engaging a crowd. For example they explain how a dancer on stage may enhance the performance through use of technology and the ways in which the dancer interacts with the technology can be considered part of the performance. They suggest categories for classifying to what degree the HCI is communicative but do not say much in what implications this has for the experience of the crowd. Their aim is rather to map features relevant for designing interfaces for performers. Figure 1 shows a diagram on approaches in designing those types of interfaces.

![Diagram](image)

Figure 1 Mapping the usage of technology in a performance against its effects. Adapted from Reeves et al. (2005).

For example figure 1 can be read as a person using technology in their performance and it notably amplifies the performance without showing it being controlled (hidden) to the audience is “magical”.

Feldmeier (2002) approaches a dancing crowd through use of technology giving an increased connection to music by having them wear or hold an interactive sensor. The sensor features lights and an accelerometer sending information to a base-station which then uses the data to control both the lights and the playing music. Many reported that they found the experience positive but also desired more control and influence. Feldmeier (2002) views this as another challenge; to balance the control doled out to anonymous crowd members while maintaining structure. He thinks that for large groups the options may be limited.

The sensors were also used in a short demonstration about large group gaming (Feldmeier, 2002) where a game of sonic tug of war was played. Input came from hitting their own sensors close to a base station so that the short-range radio signals could be received. The data then changed the pitch of a tone where a higher pitch indicated one group pulling ahead with greater activity while a lower pitch meant the other group were more active. People knew the game was over when the pitch was locked in. Formal evaluation lacking, the users are reported to have found it intuitive and fun.

Ulyate and Bianciardi (2002) designed an interactive experience where people could influence visuals and music by dancing in a club setting. Their goals with developing the concept included to induce
some type of social group feeling. Evaluation of the system seems informal with no reported method to gauge participants’ experiences. Even so they report that the success of having people engage in the system may be due to factors such as keeping the input system simple with no required instructions and having good responsiveness and feedback so users never doubt whether or not their input is being read.

Veerasawmy and Iversen (2012) also try to engage the crowd further through interaction design. They created an interactive banner and placed it between supporters and a soccer pitch. During a game the supporters cheering determined how much of the banner was covered in their respective teams color. This prototype was then evaluated from observing the supporters use it and through brief interviews with them.

A final example comes from Krogh and Petersen (2008) who are interested in what they dub Collective Interaction meaning that co-located people share resources for controlling an interface. They design a concept called Squeeze where family photos are displayed on a wall and the interface for navigating the photos is a large beanbag. This made multiple people to cooperate to navigate the interface through Collective Interaction.

Single Display Groupware (SDG) is when multiple users of a system each have their own source of input (e.g. mice) but share the output channel (e.g. display). Some research has been made about the challenges these systems poses suggesting that interfaces be designed allowing for spatial separation. In a drawing program with input from several mice this could mean avoiding a menu-bar in favour of menus placed in a circle around the pointer (Tse et al., 2004). Doing otherwise may result in friction and frustration. Krogh and Petersen (2008) note this and instead try to make multiple inputs a playful experience and a requirement for taking full advantage of the system. Using the system makes users negotiate a shared goal and enables interactions furthering the goal or teasing one another by working against the goal. The usage of the system is social and this is what they call Collective Interaction.

Similar works designing for crowds with the aim of having them engage more socially are thus being pursued. Many have the primary aim of testing technology in a live setting with the underlying goal of engaging and socializing people. The success of the actual technologies are rather apparent and easily quantifiable but capturing peoples’ responses is not as rigorously carried out.
3 Methods

This section explains what methods have been used and how they were implemented in this work.

3.1 Customer Journey

Segelström (2010) describes customer journeys as a widely-used method of visualizing a person’s experience of a service and how it should work. It is not for highlighting how a service functions operationally but instead focuses on the emotional experience from a user perspective which makes it suitable for this work. Manning et al. (2012) suggests starting work on a customer journey by mapping assumptions from employees and later confirming these with actual customers through interviews and other methods. This chapter thus explains the workshop held with members of Stagecast and the interview process follows at (3.4).

The moments at which interactions between a user and provider takes place are called touchpoints and together they create a story of how a user could experience the product (Stickdorn et al., 2011). Stickdorn et al. (2011) suggests that this type of overview enables identification of both problem areas and opportunities for innovation. Focusing on touchpoints makes it possible to break down the service experience into individual stages to analyze further and make the experience into what the service provider wants (Nenonen et al., 2008).

Nenonen et al. (2008) describes customer journeys being used by service providers or sellers seeing the purchase as an experience. They suggest several methods for data gathering to understand how customers usually use and experience their service. Richardson (2010) explains that there are multiple methods for making customer journeys but that he preferably uses qualitative methods and observe how people use a service. Then these are analyzed and placed on a timeline including information about actions, motivations, questions and barriers. In other words Richardson (2010) highlights the importance of knowing what people do, why they do so and what they are feeling, if they are uncertain about things hindering them from moving forward, and if there are other types of barriers hindering them.

Segelström (2010) also notes how differently customer journeys are produced but that recurrently they contain the element of time, interactions and emotional triggers. This work will view the concert (along with time before and after) as a customer journey and see where touchpoints can be added to deliberately create a positive and engaging user experience. Temkin (2010) suggests starting mapping the customer journey by collecting already known insights from cross-functional stakeholders within the company to generate ideas about how customers experience the service now and to early on get them engaged in the project. Stickdorn et al. (2011) suggest gathering a similar group and map from left to right what actions a customer will complete from start to end where the start is even before the user has made their choice. After this Grocki (2014) suggests brainstorming touchpoints before presenting a digitized customer journey.

A focus group with stakeholders from Stagecast was gathered with the intention of mapping out the concert going experience in full. All were introduced to the purpose and what would be the product of the following 2 hours. A high-level timeline was introduced and drawn on a whiteboard to get the group going and expand upon. The timeline was of three parts “Before Concert”, “During Concert” and “After Concert” and 3 levels consisting of activity, thoughts and feelings and opportunities (added in the second brainstorming session), similar to what Arvola (2014) and Ewerman (2017) suggests.
Each activity was graded on a scale between 1 and 10 were a low score meant that they were low points of the experience where people tend to be bored or distressed. A high score close to 10 were peak moments of the experience where people enjoy themselves. This is used to see where a service can be improved and were to focus improvement efforts (Stickdorn et al. 2011).

The workshop went on for little more than two hours in the afternoon and included 6 participants, all below 30 and above 24 years of age. One stakeholder participated through VOIP and the organizer also took part. The workshop was divided into three sessions without breaks where each session corresponded to the division of “Before”, “During” and “After”. Thus initially only activities occurring before the artist took stage was put up, followed by activities taking place before the artist goes off stage, and the last activity came to be showing your grandchildren photos from the event. The customer journey was then validated through a representative focus group (see 3.3).

3.2 Ideation through Brainstorming

Jones (1992) describes brainstorming as a method for groups of people to produce many ideas quickly. Stickdorn et al. (2011) use brainstorming sessions early in the creation process to get out as many ideas as possible and learn from both the bad and the good ones. Both Stickdorn et al. (2011) and Grocki (2014) suggest brainstorming sessions after having made the customer journey and Stickdorn et al. describe how some firms use storyboards in their brainstorm sessions to make the service visible during discussion.

For making a successful brainstorming session Jones (1992) enforces a rule where no idea is to be criticized and wild ideas are welcome. In an example as many ideas as possible are to be written down individually in 10 minutes. After that each idea is presented to other participants who get to talk and write down any further ideas this may spark. He suggests to categorize and sort the ideas written down on cards and in this sessions participants were instructed to place their idea in relation to the previously developed customer journey to make it self documenting.

Jones (1992) argues that the strength of the method comes not from the quality of the first ideas themselves but rather from that it shows how many different angles a problem can be approached from and that clear categories of ideas suggests where to start the design work.

Arvola (2014) states the importance of having stated a challenge which the session is about and this sessions challenge was to come up with moments (opportunities) that can be related to and enhance the suggested activities from the previous session. Not necessarily to ease pain-points in the concert going experience but to come up with novel ideas aimed to engage audiences, before during and after the concert.
As suggested by Jones (1992) sessions were held for 10 minutes. 3 sessions were held in total, 1 respectively for before, during, and after and each started with a brief summation of what activities were suggested in the previous workshop. There were 5 participants in this session (the same stakeholders as in the first customer journey workshop, lacking one) including the moderator and one joining from VOIP. Participants themselves placed their idea in relation to where in the timeline they thought it would fit in relation to other ideas. All suggested ideas are listed in the appendix D.

Figure 5 One of the two walls with touchpoints (yellow) and brainstormed moments (blue).

3.3 Focus Group

Focus groups is an efficient method of gathering data from many people simultaneously. Group interactions are explicitly used and people are encouraged to talk to each other to share anecdotes, ask questions and commenting on one another. Kitzinger (1995) explain that the method “is particularly useful for exploring people's knowledge and experiences and can be used to examine not only what people think but how they think and why they think that way”.

Krueger and Casey (2014) describe focus groups a small number of people (5-10) sharing characteristics, providing qualitative data, is in a focused discussion, and helps understand the topic of interest. It is important that the group members feel comfortable and at ease which will promote their engagement. Everyone was ensured confidentiality and informed that there are no wrong answers but only differing points of views (Krueger & Casey, 2014) and were offered refreshments.

Focus groups have several usages. Among them are evaluating services and plans along with receiving feedback before rolling out solutions (Krueger & Casey, 2014; Howitt, 2010). This work aims to present the concert going experience as a service using the service design method of customer journeys to
outline and plan where the experience can be improved. It is common to have some materials for the participants to rank and discuss which is also the case in this example where a suggested customer journey was to be validated and expanded upon which is how Temkin (2010) suggests creating customer journeys.

Using focus groups is suggested when a range of opinions and experiences is wanted on topics about behavior and experience. To get the most of a session a good moderator is needed who can steer the group discussions to cover those topics and make sure that everyone is heard (Howitt, 2010).

Participants were recruited through groups on Facebook with posts encouraging concert goers to get in touch. To get a high quality discussion participants must be comfortable, familiar with the context and be homogenous (Greenbaum, 1998). These criterion were met in both focus groups where the first group all work together while the later group all study on the same university program. Everybody were familiar to each other and everyone often visit concerts. To start off the discussions the purpose of validating and expanding the customer journey was explained along with the larger goal of finding moments where people’s experiences can be improved with regards to crowd experiences. The phases that had emerged from the customer journey workshop were introduced and then discussed one by one, touchpoint by touchpoint allowing adjustments in rank and inclusion.

![Customer journey with suggested changes.](image)

3.4 Interviews

In order to find out what concertgoers’ experiences are like semi-structured interviews were held, as informed by Manning et al. (2012). The aim of the interviews were somewhat exploratory since the most similar research on audience members behaviors focus on emergency situations (Johnson, 1987;
Cocking et al., 2009; Drury et al., 2006). To gauge audience engagement through interviews is a topic not well researched making an exploratory approach necessary. The aim is to further understand concert goers experience in a general sense and hopefully connect this with touchpoints from the customer journey but also to let individuals partaking in the focus group reaffirm the customer journey mapping of the concert going experience. This can then inform the choices about what prototype to implement to make a concert more engaging.

Manning et al. (2012), Nenonen et al. (2008) and Temkin (2010) suggests using interviews as a method for following up the results of the stakeholder customer journey workshop. After having asked if there is anything they would like to add to the customer journey the interview moved on to focus on their concert experience and what they perceived to be engaging (see interview template at appendix A). All 4 participants had been to a concert within the last year (see appendix C) and all interviews lasted for approximately 1 hour.

Interviews were semi-structured to capture expansive data about how concert goers reason about their experiences. Being semi-structured means that what the interviewee answers is explored further to get to the bottom of their reasoning and that questions are probing, designed to garner extensive answers (Howitt, 2010). Smith and Osborn (2015) lists important attributes of semi-structured interviews as being

- Attempting to establish rapport with the interviewee.
- Ordering of questions is less important.
- Probing interesting arising topics.
- Probing the interests and concerns of the interviewee.

The probing questions were mostly adapted from Kahn’s psychological study about engagement in the context of work (1990). The questions try to understand the psychological and social world of the interviewee by giving them maximum space to tell their own story and following up on the answers (Smith & Osborn, 2015).

### 3.5 Interpretative Phenomenological Analysis

The interviews were recorded and transcribed verbatim and then analyzed using interpretative phenomenological analysis (IPA). IPA is a common method of analysis in qualitative research used for analyzing how people make sense of life experiences and events (Smith et al., 2009; Smith & Osborn, 2015). A central assumption of the method is that people are the expert of their own experiences and that you want to gain their personal insight from an insider perspective. Particularly useful is the method when dealing with complexity, processes or novelty which have to be addressed broadly without testing preconceived hypotheses (Smith & Osborne, 2015). Depending on resources, the numbers of interviewees are typically between 3 and 6 (Howitt & Cramer, 2011) and should be from a homogenous group of cases (Smith, 2004).

The analysis followed the recommendations from Howitt (2010) where transcripts were first searched for preliminary themes. Themes were then searched for interconnections creating superordinate themes presented in the tables 1-4 (see 5.2). Then the next transcript was analyzed in the same way until all interviews had produced superordinate themes.

### 3.6 Evaluation using Focus Groups for Games

Under this heading using focus groups as a method for evaluation will be motivated. This evaluation was also informed of the more general explanation about focus groups in 3.3.
In designing and creating a design artifact it is important to prove that it actually solves the real-world task it was created to solve (Tremblay et al., 2010). When evaluating system usability there are a variety of methods to choose from as listed by Bias (Nielsen, 1994). In this work the system being usable is not interesting since the interaction of pressing a single button is so simple (see 4.2). Instead what is to be evaluated is if the qualitative themes emerging from the interviews can be facilitated.

Gaining this more qualitative knowledge about how people experience a game can be done through the otherwise often used method of focus groups suggests Eklund (2015). She suggests that for analyzing social aspects of games the focus group have beneficial qualities facilitating discussions between testers where they can compare and elaborate on their experiences. Ijsselsteijn et al. (2007) echoes this sentiment, as does Poels et al. (2007) who further argues that within the academic context of gaming there is a lack of research regarding the “the actual experience of playing digital games”. To gain an understanding of this they too opted for the focus group as a research method and concludes that it “provided us with a rich and varied set of experiences which enabled us to get a full account of game experience and the dimensions it consists of”.

Dixon et al. (2010) also used focus groups in their study about how parents and children view active video games arguing that “It is a particularly suitable method of gathering data when the topic is specific and where the researcher, as in this case, is seeking the reactions of participants to an idea, product, intervention or shared experience” which is what is to be evaluated.

Another aspect of the sociality is discussed by Eklund (2015) who reasons that users do not make sense of a particular media in a vacuum but rely on previous experiences, knowledge, and when it comes to gaming, particular values and norms in a community. Sensemaking is done through interactions with others on forums and in game through (voice) chat. Focus groups embrace this social nature and uses it for gathering data.

Participants played the game (see 4) for approximately 15min in total. Unfortunately the router (an iPhone) could not handle all players connected at the same time so people took turns playing 1 vs 1. After the play session people sat down for a focus group which lasted for less than 30 min. The questions (see appendix B) asked in the focus group were designed to expand upon the themes discovered through the previous interviews (see 5.2).

### 3.7 Content Analysis

Graneheim and Lundman (2004) calls the distinction between manifest and latent content a basic issue in performing qualitative data analysis. Latent content refers to the underlying meaning of what has been said which varies in depth and abstraction compared to the manifest content which is what deals with the obvious and visible components, making a more “face value” interpretation. Braun and Clarke (2006) uses the same terminology when describing a latent approach as examining “[...] the underlying ideas, assumptions, and conceptualizations / and ideologies / that are theorized as shaping or informing the semantic content of the data.”. They contrast that with the semantic approach which then is not looking for anything beyond the surface meanings of data, the same as the manifest approach above.

Braun and Clark (2006) then suggests choosing either approach based on what the research topic is. Likewise Howitt (2010) states that if what is researched is people’s experiences of a certain topic then the (semantic) content of what is said should form the basis of the analysis. This aligns very well with the goals of this analysis which will be of the manifest/semantic type.

In their review of qualitative analysis methods Braun and Clarke (2006) makes a distinction between inductive and theoretical analysis. Inductive analysis aims to approach data without a theoretical
framework and make unbiased interpretations with strong links to the data itself. In contrast a theoretical approach means that the data is interpreted with the aims of relating it to a preconceived theoretical framework. Hsieh and Shannon (2005) calls this theory driven approach directed content analysis where “prior research exists about a phenomenon that is incomplete or would benefit from further description”. The questions asked the focus group is of the informed approach focusing on previously found themes to be discussed. Further they explain that analysis is done through using pre-existing themes and highlight passages mapping to these and any passages left can be candidates for themes codes.
4 The Game

The purpose of the prototype is to facilitate aspects of the concert going experience identified through the interviews (see 5.2). More specifically the purpose is to improve the wait before the artist enters stage which was reported as boring. The game should not be regarded as a result of the research but rather as materials for testing where on the customer journey themes from the interviews can be facilitated. Implementing a game before the start of the show can do this by promoting interaction with other people at the venue and getting people energized instead of tired from waiting which later may make them engage more in the concert. This is similar to the design goals by Krogh and Petersen (2008) with both systems aiming to facilitate (not exclusively) social behaviors. It differs by using a SDG model but similarly exploits differences in goals as described by Tse et al. (2004) in making a game of them. For the results of the evaluation of the game see 5.3.

The developed prototype is an idea from the brainstorming-session (see Appendix, Before, Departure & Arrival, Tug of War) where an entire crowd can engage in a collaborative game of Tug-of-War. The design of the game is supposed to create a shared focus of attention where players are not engaged with their own screen which instead is used as an arbitrary input device for the game. The game consists of three parts; the actual on-screen game, the client, and the server which are explained below.

4.1 The on-screen Game

The players place their attention on a giant projected backdrop where the game is displayed. The game is simply implemented and after an animated countdown finishes players can start to move the dividing line.

Figure 7 The animated countdown on top of the game.
Figure 8 An active game where neither team is in pulling ahead.

The line dividing the two teams is animated in a wavelike fashion and when teams gain on each other the line smoothly transitions back and forth. When a team wins by covering the entire screen in their color the game stops and large bouncing letters congratulate the winning team.

Figure 9 The pink team tapped faster this game.
4.2 The Client

When connecting to the client webpage they are first prompted to choose teams by tapping either color. Doing so covers the large part of their screen in their team color.

![Choose team!]
Figure 10 The player must choose between pink and blue.

![Change Team]
Figure 11 The player chose pink.

![Change Team]
Figure 12 The player has changed team.

In this prototype players can change teams by clicking the large text at the top “Change Team” which then switches the color to the other team. All changes happen without leaving the webpage. Each tap move the chosen team color on the large screen toward the other end of the screen, covering more screen-estate and when the screen is overrun by one color that team has won.

4.3 The Server

The game works by having the clients send their team by POST-requests to a node.js server which keeps track of the score by a single value. The on-screen game sends a GET-request every 200-millisecond updating the position of the dividing line. This stops whenever a team covers the entire screen in their color. Refreshing the page tells the server that a new game is starting, resetting the score. When the countdown is finished the server starts accepting GET-requests again preventing the teams from cheating before the timer is done.
5 Results and Analysis

Below the results from the work will be presented together with interpretations of the interviews and focus groups.

5.1 Customer Journey

The method for creating the customer journey had the benefit of being largely self-documenting. The post-its suggesting activities along with their related thoughts, feelings, and emotional rating were chronologically clustered and entered into a spreadsheet. These clusters represented the fine grained phases of “Awareness”, “Preparations”, “Departure & Arrival”, “Pre Concert”, “During Concert”, “During Concert - Tech”, “Late in Concert”, “Leaving Venue”, “Outside Venue”, “Social Media (same night or day after)”, and “Post Concert Night”. Clusters had many similarities and overlaps so were condensed into the phases “Awareness & Ticket Purchase”, “Preparations”, “Getting There”, “Concert”, and “Post-Concert”. These phases and the contained activities were then presented to the focus group for validation.

The resulting customer journey from after the validation can be seen below. Touchpoints connected to form loops are to be read as possibly occurring at the same time.
For the pec band, although boning is a better experience, for the pec band, being a better experience and being aware of the experience, a better experience awaits you. Bone banding is a better experience and being aware of the experience, a better experience awaits you. Bone banding is a better experience and being aware of the experience, a better experience awaits you. Bone banding is a better experience and being aware of the experience, a better experience awaits you. Bone banding is a better experience and being aware of the experience, a better experience awaits you.
5.2 Interviews

The results from the interviews are presented in the tables of themes below together with summarizing and complementary texts. Each interviewee has their own table where the most prominent themes of discussions are presented and exemplified through citations. The tables were developed through the method of interpretative phenomenological analysis explained in 3.5 and presents why these people go to concerts, how they perceive and experience them, and later informs what aspects may be improved through phone-based solutions.
5.2.1 Interviewee A

Table 1 The resulting themes from the IPA of Interviewee A.

<table>
<thead>
<tr>
<th>Superordinate theme 1: Buildup, expectations and release</th>
<th>Superordinate theme 2: Peaks</th>
<th>Superordinate theme 3: Attitudes toward collective</th>
<th>Superordinate theme 4: Tech at concerts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildup gives explosion. “[…] man bygger upp till nätting och till slut så kommer det och det är därför den här explosionen blir så stark på något vis. Förmodligen påbyggnaden innan.”</td>
<td>Seeing band come on stage. “[…] när man ser sitt favoritband komma upp och man ser deras silhuetter på scenen det är liksom en extrem känsla som inte riktigt går att jämföra med andra saker.”</td>
<td>Sharing feelings creates community. “[…] så har någon kanske pinpointa på minutslaget kanske när det sätter igång och då kan jag bara yeah det var så jag tänkte också liksom. Så på samma sätt som någon har delat det på internet så kanske jag skulle tycka det var roligt att dela det och se att folk känner likadant, återigen den här samhörighetskänsla n.”</td>
<td>Smartphone can be distracting. “[…] folk klagar hela tiden på att folk har sina smartphones upp och filmar hela tiden och jag förrör det på nåt sätt att man är inte med på konserten och man tänker på senare du kommer inte titta på den här videon. […] jag inte att den där smartphonen ska bli ännu mer utav en distraktion liksom.</td>
</tr>
<tr>
<td>Buildup is not shared. “Ja för jag har nog aldrig kännt att jag har delat det lika mycket med någon annan den där uppbyggnads känslan.”</td>
<td>Presence enhances feelings. “[…] man vet att dom är där och man själv är närvarande. Svårt att säga exakt vad det är men allt blir mycket starkare på något sätt. […] det är precis som att den känslan blir 10 gånger större på</td>
<td>People are annoying before show start. “[…] innan det kommer gång och så här man står och väntar och samt då kan jag störa mig lite på det då kan tycka det är lite jobbigt, bufflas med folk speciellt när man är i publikhavet […]”</td>
<td>Using tech needs a well-reasoned implementation. “[…] jag tror att om man kan få in det snyggt och genomtänkt så kan det nog vara en jävligt bra förhöjare, det tror jag.”</td>
</tr>
</tbody>
</table>
An interesting aspect of how A experiences concerts is the first superordinate theme about buildup, expectations and release. He has expectations about how he will enjoy the concert which seem to build excitement within himself until it is finally starting which creates an “explosion” of emotions. He likes this buildup and is aware of how he himself creates this for himself. He also feels that this is not shared with others explaining how he often attends concerts with his significant other and how he feels his experience has been more explosive. This is something how notes and explicitly does not pass judgement saying how one need not be better than the other but only that there is difference.

Later when further discussing the aspect of sharing feelings he reaches a somewhat contrasting sentiment becoming enthusiastic describing the enjoyment in finding someone else on youtube commenting on the same moment he too experienced strongly (see table 2 above). This creates a feeling of togetherness, he says. His relation to the audience and other people otherwise is mostly described as a bit annoying. He describes how he is ready to help people but hopes that the need will not arise, that people can be physically annoying, but also using it for feeling more anonymous becoming one among many or part of the crowd.

The above annoyances are few compared to an otherwise very positive outlook on concert experiences with lots of ecstatic and euphoric feelings which he compares to experiences in sex, sports, and careers. The positive outlook stretches to the ideas of introducing more tech into the experience as well. Noting that others may find it distracting he himself thinks that done in a proper fashion it could enhance the experience.
<table>
<thead>
<tr>
<th>Superordinate theme 1: Group belonging</th>
<th>Superordinate theme 2: Performance</th>
<th>Superordinate theme 3: Annoyances</th>
</tr>
</thead>
<tbody>
<tr>
<td>More intimate at smaller venue. “bara att publiken är färre i antalet tror jag gör att man får en intimare känsla på något sätt ... man liksom behöver inte dela bandet med lika många”</td>
<td>Seeing the performance adds to the experience. “Att se musiken framföras live är ju också någon extra dimension till det skulle jag säga.”</td>
<td>Rude people are the worst. “… nån person person beter sig som en rövhatt och då blir man trött. Man undrar varför, varför inte vara trevlig?”</td>
</tr>
</tbody>
</table>

When asked about the worst parts about concerts the answers mostly relate to being squeezed in with other people or strangers being rude. Also a nuisance is waiting for the band where he becomes very bored and the wait feels long. Other feelings about attendees include a feeling of intimacy at smaller venues where the band is not shared by many. The smaller venue, he further reasons, is not well suited
for using cellphones or other personal technology because it might affect this feeling of intimacy. A larger venue is not subject to this because of there being more people there.

It being other people there creates a feeling of it being shared which heightens the overall experience. Relatedly there can arise a feeling of being outside a group when you are not dressed as others within the (metal) subculture. Dressing similarly he thinks would probably make him feel more welcome and part of the group. Being in a smaller group of friends is very enjoyable. He recalls through an anecdote how a group of friends all liked the same songs and how enjoyable it was.

Most important to the interviewee is the performance. He wants to experience the band live to hear and see them perform. The first thing he thinks about when recollecting to a friend how the concert was is how well the band performed and if they had good interplay.

5.2.3 Interviewee C

Table 3 The resulting themes from the IPA of Interviewee C.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymity entails less expectations from self. “Det är ju bekvämare att vara anonym...”</td>
<td>Worst part is irritating idiots. “[... man blir irriterad på [...] Folk som taffsar eller knuffas med flit eller beter sig allmänt drygt.”</td>
<td>Feels safer with friends. “[... det känns väl säkrare när man är med sina vänner”</td>
<td>Tech could build engagement before. “[... tagga konserten ikväll jag är sjukt taggad MVH artsten”</td>
</tr>
<tr>
<td>Enjoys becoming more acquainted with artist. “...lite konstiga texter ibland men så kom jag dit och jaha han är transa, det förklarar allt”</td>
<td>Groping is common and detracts: “[... killar som taffsar det är såhär vafan. Det är bara jamen sabbar.”</td>
<td>Friends create group-feeling. “[... man är en publik i publiken [...] vi vet att just nu äger vi stället.”</td>
<td>Most engagement on popular songs. “[...] när dom kör sina såhär kändaste låtar och man märker att alla i publiken är med och det är alltså när alla verkligen engagerar sig”</td>
</tr>
</tbody>
</table>
Artists reciprocate an engaged audience. “[...] så kunde [...] alla i publiken alla låtar. [...] Håkan slutade sjunga och satte sig mitt på scenen. Man bara stod där och wow.”, “[...] alla står och hoppar. Så dom gör ju oftast typ bättre ifrån sig också och ja [...] det är då man fattar hur viktig publiken är.”

Weary since beatdown: “[...] jag har blivit nedslagen på en konserten en gång så jag är ju lite rådd. Så jag brukar alltid stå liksom på sidan mest”

Different levels of dedication among fans. “[...] det är ju inte som att min mamma förtjänar mindre att vara på konserten än dom som tätar.”

Venue affects engagement: “[...] i en arena får du mycket publikengagemang gratis. Det liksom att 100 personer skriker näning i en arena är ganska lått att få om det är 1000 pers där.”

Happiness is contagious. “[...] jag blir gladare av att se andra [hoppa och dansa]”

Weariness hinders engagement. “Det är aldrig så att jag bara helt lyssnar på musiken och glömmer bort allt, jag har ju fortfarande koll på hur folk runt omkring mig beter sig”

For this interviewee the concert experience seems very social where 3 out of 4 superordinate themes are social. An interesting conceptualization in this interview was how she explained the interactions between the audience and the artist as one between and individual to the group. She experienced an intimacy and a the forming of an acquaintance with the artist while understanding that this was not mutual due to limits in the communication between the crowd and artist. The crowd also communicates to the artist but in a more crude fashion where the artist does not see each individual. A suggestion was raised about how technology might be used to create an experience more catered to individuals by perhaps live chatting but she seemed pleased with the current dynamics.

Becoming acquainted with the artist was said to be one of the best things about a concert. Through an anecdote she recalled what a revelation she experienced seeing an artist being transsexual. Previously lyrics had been a bit confusing but when seeing the artist live everything was explained and she felt it was a good experience somehow shared with the artist. She feels that the audience is part of making the concert even though the communication can be one-way to her as an individual because the artist never learns to know her, and she is fine with that. She even enjoys parts of it since it makes you feel anonymous which can ease expectations of you as a member of the crowd.

Another aspect of how she relates to the audience and crowd is her weariness. She told a story about getting beat up and ending up on the concert-floor and waking up at an infirmary. This has made her more weary about her surroundings and it is a hindrance for full engagement. On a similar note she explained how getting groped by strangers is among the worst part of her experience and explained different methods of dealing with this, most being passive and moving to another part of the crowd. The other interviewees were all men and did not mention similar experiences which indicates that this is only part of a female concert experience. A positive experience is seeing audience members dance which she experience to be contagious

A related but distinct theme was that of subgroups and in-group feelings. She explains that being part of a group of friends makes it easier to let loose a bit extra and dance and shout. Even though explaining
it modestly she also seems to like being observed with her friends having a good time which give her a feeling of power, “[...] we know that right now we own this place.”.

Engagement was another theme where she sees technology as possibly providing the means to further engagement by easing the artists communication to fans. Artists could hype the audience on their way to the concerts she suggests. The want to be engaged she experience as strong and relates that to feeling contributory to the audience being “amazing” which is most prevalent when the most popular songs are played. She also reasons that venue size affects levels of engagement. A large audience is easier to engage than a smaller one. But as mentioned earlier engagement can be hindered because of previous experiences making her weary.

5.2.4 Interviewee D

Table 4 The resulting themes from the IPA of Interviewee C.

<table>
<thead>
<tr>
<th>Superordinate theme 1: Reciprocal enthusiasm between artist and audience</th>
<th>Superordinate theme 1: Engagement</th>
<th>Superordinate theme 3: Tech habits and presumptions</th>
<th>Superordinate theme 4: Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonchalant artists makes for bad performance. “[...] dom har blivit lite för stora och sen bara skiter i publiken det kan paja...”</td>
<td>Could engage further by learning lyrics. “Jag skulle vilja mer faktiskt. Men det kräver att jag kan musiken också känner jag.”</td>
<td>Using individual lamps is effectful. “[...] sätta igång lamporna, då stod jag längst fram och kunde titta bak över hela Tele-2 arena det var fan jävligt håftigt. Får lite gashud av att tänka på det.”</td>
<td>Should feel authentic. “[...] det var väldigt skriptat, man såg rätt igenom det. [...] det var inte den här genuina grejen. Där var det lite göra för görandets skull. De var inte genuint lyckliga att spela musiken just nu.”</td>
</tr>
<tr>
<td>Great when audience can give to artist. “Det håftigaste ögonblicket är nog när bandet inte är</td>
<td>Friends can both ease and hinder engagement. “[...] om man har kompisar med som är sjukt</td>
<td>Using tech needs timing. “Man kan få publiken mer delaktig men samtidigt så kan man få dom att försvinna från konsertupplevelsen och</td>
<td>Want to experience the performance. “[...] kan dom helt plötsligt vara svinbra live, sjuk scennärvaro, trots att dom är typ 70 år typ</td>
</tr>
</tbody>
</table>
Interviewee D thinks it is important that the artist seems to be enjoying performing. This is connected to the artist giving something back which makes it a reciprocal exchange. When both the artist and the artist partake in this exchange he feels that he becomes part of the concert and the event. If an artist is nonchalant and does not care about their audience this feeling is not achieved but on the other hand there is a scenario where a smaller band become overwhelmed by the audience's participation and that is one of the coolest moments of any concert.

Engagement also became a superordinate theme of the discussion where he felt that he wanted to be more engaged at concerts but that it partly hinges on him knowing the lyrics, which is not always easy to learn. If he is tired or feels his injured knee he has a harder time becoming engaged but if the band is good enough he can forget those things. Friends can both induce and prevent engagement depending on their energy levels. If friends are high energy you can piggy-back off that yourself.

How he uses and perceives tech was also a superordinate theme and he views it mostly as a distraction and feels that you get pulled away from the experience when you receive notifications and such. That is why he avoids using his phone during concerts. He has had good experiences with cell phones at concerts though and gets goosebumps describing a moment at an arena concert where people lifted the torches on their phones. Moments like those require timing and thorough thinking to fit the rest of the concert experience. To ease sceptics into usage he suggests informing people beforehand how it will be used.

5.2.5 Summary
Summarizing all interviews above you can see that they see going to a concert as a social event, they take much interest in the performance, they want to be engaged, and they have a somewhat skeptical view of using personal technology, such as phones, during shows where it needs to fit the context.

From the interviews it seems like people have expectations on how a concert should be performed. Especially in what ways the audience interacts with each other and the band. I1 mentions how people should be informed in advance what to expect from their phones and I3 is onto something similar when
speculating in himself becoming irritated from vibrating phones. Encouragingly the same interviewees can imagine phones adding to the experience and mentions as much when talking about a concert previously attended.

Overall concerts are very positive experiences with many distinct moments of enjoyment. Everyone enjoys being part of the crowd which allows them as individuals to be a bit more anonymous and feel part of something. Having the artist communicate to this crowd in a reciprocal and enthusiastic manner is important for the enjoyment. The communication should be reciprocal meaning that the audience should give back to the artist. In what manner is somewhat contingent on the venue where a smaller venue has a more intimate feel while a larger one may more easily create certain types of audience engagement.

Sharing the experience with friends is the norm but that is not altogether positive since they may not share and reciprocate your feelings but when they do they make it easier to act out through dancing and singing. Sharing the feeling with friends tends to happen on shared songs; they can also be good for providing a sense of security.

5.3 Evaluation

The evaluation of the prototype was done through a focus group (see 3.3 and 3.6) and analyzed using qualitative content analysis (see 3.7). The analysis was directed and used the themes from the interview to try and answer if the aspects having emerged from those could be facilitated with this type of game. The results from the evaluation are presented below by stating the themes from the interview and by example show how the discussions in the focus group relate to them.

The themes that emerged from the focus group are explained further below and were:

- Engagement
- Sociality
- Playability
- Positive feedback
- Implementations and suggestions

5.3.1 Engagement

Upon opening the interview with the broad question of “What do you feel after having played?” the first non-joking answer was about feeling engaged.


I4: Jag håller med.”

The group agrees with the sentiment of it being engaging and it is also obvious from the recording that people engage in the game and really want to win.
Figure 14 Two players who really want to win with the moderator on the left. Not seen are the other two present participants.

Another quote also highlights the want to win.

“I: Det såg ut på vissa av er som om pulsen gick upp på er och att ni blev lite exalterad. Är det rätt tolkning av det?

I3: Ja det blir man verkligen. Man vill som sagt vinna väldigt mycket. Det är ju det viktigaste när man kör det.”

Although partly jokingly stated in combination with I3s’ performance it seems like there was at least some truth to it.

Returning to the question if the engagement could spill over to the rest of the concert the group said:


I4: Jag tänker man skulle kunna göra det ännu mer kopplat till konserten i sig. Jag vet inte hur det skulle kunna gå till men…

I1 reasons that it could be a way to keep the energy up while waiting for the artist to enter and I4 follows up with how it could be made to relate more closely to the concert which they return to below.

5.3.2 Sociality
Along with engagement this was a theme from the previous interviews. The group were asked whether they imagine this creating interactions between strangers and whether it could foster togetherness:

“I3: [...] i den kontexten, när man är där i, bland mycket folk och det är ju en social miljö, så tror definitivt att det skulle kunna funka.

I4: Det tror jag också. Men det behöver bara vara att du behöver regga dig till nån kanske en kod på skärmén eller nåt så får du en slumpmässig färg eller nåt samtidigt som det vore kul att splitta
havet som du säger. Men på nåt sätt så då får man en interaktion med varandra som du var inne på.”

I3 reasons that the social setting already implied makes it plausible that this would further social interactions. I4 starts to think about technical implementations before concluding that he/she agrees in it creating interactions. Later the question arose again:

“I: Men gör man det, främjar man någon form av interaktion mellan folk i publiken liksom?

G: Ja.

I4: På individnivå kanske.

I3: Det blir väl ett bra sätt att starta en interaktion på något sätt.

I1: Bara säga du är ju i fel lag. Haha. [I3: Haha ja precis och sen...] Sen är man kära!

G: Hahaha.”

I3 sees the opportunity of it becoming an icebreaker and I1 is onto something similar when he/she imagines how a conversation could start and jokingly ends about them immediately falling in love.

5.3.3 Playability Aspects

When the group were asked to discuss how they felt engaged when playing responses included the want to win and how it was fun to develop different techniques for playing.

“I1: Man vill ju vinna haha. [I3: Oja, oja.]


I3: The tapper. [G: Hahaha]

I1: Fast nu syntes det ju mer skillnad också i vad man gjorde. Man kan ju tänka sig att om man är på konsert, ja det är ju i alla fall 100 pers i varje lag, då lär det ju inte såhär, amen nu såg man ju stor skillnad på amen nu använde den här skitbra. Om man är typ 100 pers så lär det va såhär mja, om en person gör jättebra så är det inte så stor skillnad. Jag tror inte [I3] hade kunnat vinna om resten av hans 100 pers lag sög.”

The group immediately became competitive and wanted to win and to further that goal observed each other’s play style and developed their own techniques for tapping as fast as they possibly could. I1 also mentions how the difference in number of people playing could affect the outcome and thus affect the gaming experience. The experience was also affected by it being easy to understand:

“I4: Men det var najs för i och med att det var så simpelt spel så behövde man inte såhär transitiona in i det. Man fattade direkt vad det var så därför kunde man direkt gå på det liksom.

I1: Från första sekunden liksom, nu jääävlar. Hehe.”

The game being easy to understand immediately made the group keen on performing well.

5.3.4 Positive Feedback

The group gave a lot of positive feedback saying they liked the idea:

“I4: Jag tycker det är en jävligt bra idé faktiskt. [G: Mmm.] Det känns som att det kan bli en grej
tycker jag.”

When asked if this could be played before the concert starts the group thought it was a good idea:

“I2: Jag skulle tycka det [I4: Det är en skitbra idé ju!] för jag tycker det är ganska tråkigt att stå där.”

Notably one of the persons in the above quote described in the interviews how he/she enjoyed the anticipation building before the band went on stage but even so he/she seems to like playing this before. In asking if the group had fun playing the reply was univocally positive and to the question if they could see this leading to something bad they “[...] couldn’t see any larger problems.”

The lack of comments about the games responsiveness could be interpreted as good feedback too. The focus group did comment about how they enjoyed the game being simple and easy to understand.

Without formal analysis on the recordings from casual observation it seems safe to say that players were having fun. They take turns and challenge other players to play against, shout and laugh, and jump around when winning.

Figure 15 Player winning after an intense game.

5.3.5 Implementations and Suggestions

Some discussion went to talking about how to implement this both technically and in comparison to similar games played both at home (airconsole) and at amusement parks while waiting in line.

“I2: Ja, jag tänker så här omröstning såhär. Om han han ska komma ut i kaninkläder så får man trycka för om man vill det eller inte haha.

I4: Jag tänkte simpla piecharts liksom du får lite alternativ på frågor som kan relatera till musiken såhär. Typ vilken låt är bäst så får du 47% tycker det och så vidare. För då blir det ännu mer kopplat
Using the game as a way for audience members to vote on things and to keep it related to the concert was suggested. Another suggestion was about making teams based on location within the venue.


I4: Det tror jag också.

I1: Det blir ju svårt såhär men då ska alla ni gå in och välja blå, och ni röd.

I2: Jo men om man triangulerar så hittar wifi var man är och då kan man ungefär se om dom är till höger eller vänster. [G: Mm precis.]”

It was also mentioned how they wanted more feedback about their performance in relation to others.

“I1: Jamen typ såhär info om typ, det räcker med att det kanske kommer upp i din mobil efter, hur många tap gjorde du och hur många tap gjorde genomsnittet i ditt lag. Typ så man vet om man var bättre eller sämre än medel typ så. Och typ jamen topp 3 eller nåt sånt där. Så att man kan titta på sånt.

I2: Hur många som var med i varje lag också. [I1: Jamen lite sånt.] Tap-[I4].”
6 Discussion

The following two headings will discuss the methods used followed by a discussion about the results.

6.1 Method Discussion

The goal of the customer journey was to find touchpoints where the experience could be made more engaging. The reasoning went that some technological implementations could be carried out over time. Say for example photo-sharing could be implemented in a number of ways in regards to people to include (artist, strangers, friends, people in the vicinity), what photos to include (only those taken in-app, automatically suggest from camera roll), and how to implement it longitudinally. If photo sharing happens throughout the entire concert experience then how does that relate to other touchpoints before, during, and after the concert? A customer journey could inform that type of discussion which it also did during the brainstorming session. Ultimately though the idea implemented from the brainstorming session is set under a limited time window before the show and in its current implementation does not need to consider other touchpoints very much. A future can be imagined though where the prototype is more integrated with the show, as the evaluation suggested, affecting what songs the artist should play or other parts of the performance. Then the customer journey would be a useful tool for presenting an overview for how different touchpoints relate to each other and also how different technological additions relate to each other.

Another interesting topic is how methods, demography, and the artistic expression relate to each other. What people attend a certain concert can be assumed to be related to what music the artist is playing. An old rock-group certainly attracts and older demographic than a younger more trendy pop-group. Since the technological additions should be able to be made to both types of concerts and relate to both types of music creating personas was not done in this work. Personas are often used in conjunction with the other methods used in this work but in this instance it would have needlessly limited the design of the prototype. When it comes to the artistic expression different artists relate differently to their stage performance. Kanye West and Pink Floyd are famous examples of where stage design is used to enhance the themes in their music. An artist like Foo Fighters or ZZ Top can be said to have a simpler approach to how they treat the stage perhaps focusing more on the actual instrumental performance. In either case the artist may want control the show in its entirety and that should take precedence over what a specific demography may think is appropriate for the show which further devalues the need for personas. How this relates to the artistic expression is further discussed in the result discussion below.

The goal of the interviews was to reach insight in how people experience concerts and what they find engaging. This may have been done using other methods such as questionnaires and participatory observation at concerts. Questionnaires have been used previously in measuring engagement, for example by Shaufeli et al. (2006). They pose statements such as:

“At my job, I feel strong and vigorous.” - Shaufeli et al. (2006)

Which respondents then rank. This type of questioning may provide a metric for measuring engagement but is not very good at explaining what moments individuals perceive to be engaging and the nuances of them. O’Brien and Toms (2010) have also made efforts to inform studies about engagement. They conducted interviews exploring what users find engaging in products (2008) which later informed the creation of an online survey enabling metrics for measuring engagement with a product (2010).

This is dissimilar to this work since the aim is not to have them engage in the prototype but through use of the prototype facilitate engagement with other constituents of the concert experience, be that strangers, the performance, or friends.

Howitt (2010) makes a difference between quantitative and qualitative psychology where the examples above would fall into the quantitative approach. More fitting for this work was a qualitative approach which is better to understand individuals experiences. This is what Khans work does when trying to understand what circumstances create engagement among employees (1990):

“What aspects of being a counselor here are personally and emotionally involving for you? What really grabs you, involves more of you than other roles you’ve held?” - Example of probing question from Khan’s study (1990)

This qualitative focus on the individual experience together with specific probes greatly influenced this work. The semi-structured format was both informed by Khan (1990) and Howitt (2010) and was chosen over a structured format because of the exploratory nature of the interviews where questions needed to be followed up. This was a good choice and it seems safe to say that many insights would have been lost had a more structured approach or questionnaires been used.

6.2 Result Discussion

The results of the interviews were very insightful. One of the goals during semi-structured interviews is to establish rapport with the interviewees (Smith and Osborn, 2015) and with answers relating to feelings of outsideness, sex, and perhaps traumatic events it feels safe to state that rapport was established in the interviews. The themes emerging from the interviews together with the updated and validated customer journey can become a good basis for informing similar work focusing on the qualitative experience of concerts in the future and definitely succeeds in mapping the concert and identifying aspects the experience exists of. Furthermore the customer journey did inform the brainstorming process of where a phone based solution can promote engagement. The ideas directly related to touchpoints later confirmed by concert goers.

The evaluation of the prototype went very well with a lot of positive feedback although there was a mishap with the connectivity. In informal pilot testing at home having 5 devices connected caused no issues. At the school where the tests were performed ports for connecting to the server are closed so instead a smartphone was used as a router to which players connected. Unfortunately 4 players plus the computer hosting the server was unmanageable for the smartphone so tests were performed with only 2 players at a time. Speculatively this may have caused players to become more focused on their own performance rather than the social aspect of it. Having a teammate may have promoted different types of interactions. At the same time people were very social even when not playing by cheering, commenting on each others playstyles and the progress of the game. In that way it was a success since it clearly seemed to promote interaction which aligns well with the themes from the interviews where going to a concert in many ways is a social activity.

A theme from the evaluation was about engagement. The sentiment was that people found the game itself engaging and it related to the want to win. When probed further if this engagement could spill over to other parts of the concert the group answered in the positive with a suggestion of making it more relevant to the concert. Promoting engagement was the aim of the prototype and the answers in the focus group indicate that it may do so. This is a positive indication but further validation is necessary and would require testing on a larger group. In conducting a larger evaluation there are a lot of interesting things to look for such as how it affects between-group behaviors, as described by Khan (1990) and as a theme in the interviews (see 5.2.3), and how it relates to Battarbee and Koskinen’s (2005) description of interactions. How will individual visitors communicate to each other about a game and can you guide those interactions through prompts for example.
Veerasawmy & Iversen (2012) note how prominent imitation of behaviors are within crowds and suggest letting this inform design choices. During the evaluation one player starting tapping the screen with two fingers, quickly alternating between the two. This was not mentioned by other players but directly after other players started doing so too. Thus in their framework about crowds a behavior emerged and was quickly imitated by other group members.

Both the interviews and prototype evaluation indicate that technological additions to concerts should feel relevant to the content of the show and this can be made in a number of ways. Weezer is a rock-band that has been active since the early nineties. Imagine them making a tour where they want to increase the audience impact of the show. Before the show starts attendees are informed that they have two set-lists, one more centered around their blue (early career) album and another more centered around their white (late career) album and that they get to chose what the focus of the concert should be through having a tug of war between blue and white. This could then influence immediate visuals along with the bands clothing and other things. The possibilities are endless.

6.3 Conclusion

Crowds are a well researched theme in social psychology and sociology but not as much when it comes to HCI research or audiences. This is apparent reading through Designing for Crowds (see 2.3) where most similar works neither discuss evaluation of systems designed for crowds or comment on particular methods in designing for crowds. Having crowds engage in technology and understanding what aspects make a collective experience different is what this work has contributed to by affirming the qualitative aspects of the concert experience and exploring how to facilitate them through interactive technology.

There are numerous ways in which an audience could become further engaged at a concert. Returning to the definition of engagement provided by Khan (1990) about people becoming more cognitively vigilant, physically engaged, and empathically connected to others you can see from the results how people become focused and wants to win, energetically tapping the phone and jumping around. Whether or not they become empathically connected should be left unsaid since Khan determined this by looking at interactions between people. When people were engaged they were more prone to sharing experiences and feelings. This may be the case at a concert where, as suggested in the evaluation, the game may be used as an icebreaker and people may start sharing previous concerts with the band or talk about how excited they are. Validating this must be done in such a context.

Establishing what a general concert-going-experience consists of through a customer journey provided a good overview of concerts and was helpful in brainstorming ideas. It can be used again in similar works related to concerts. Even though participants validating the customer journey are experienced concertgoers further validation of the model could include ethnographic studies such as participatory observation.

How a concert is experienced was very well answered in the interviews which touched upon very personal feelings and experiences ranging from getting beaten up and how it compares to sex which can be indicative of the rapport during the interviews. The results from the interviews were good at identifying what aspects of concerts that are prominent for concertgoers including in what ways it is a social experience, that the performance is important both in being an opportunity for including the crowd but also quality-wise, that concertgoers want to be engaged, and that phones are seen as distracting and changing this through phones and interactive technology needs to be relevant to the rest of the show.
The prototype developed from these insights could easily be made more relevant to the show, as discussed in 6.2, and the evaluation with the same participants from the interviews indicate a positive outlook on the concept. Some mentioned both during interviews and after evaluation being bored before the show and that a game such as this could help keeping energies high. It facilitating sociality and engagement seems possible from the focus group. Testers became engaged in the game and wanted to win but weather this spill over into the rest of the concert experience would require testing in such a context. People also started imitating each others behaviors in form of playstyle (see 6.2). Imitation is a core feature of crowds (Veerasawmy & Iversen, 2012) and it would be interesting in future studies if it creates opportunity for additional imitations. For example it would be interesting to see if players at a larger event create a chant or something similar.

Further research should be made with larger groups and perhaps with other additions than games before the show. In any event this research can help inform how audience members perceive concerts and what touchpoints can be improved.
7 Bibliography


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Appendix

A. Interview Questions

- Follow up on CJ
  - Was there anything you thought of that didn’t get mentioned?
- Why do you go to concerts?
- Do you enjoy music generally and is there anything special about going to a concert?
- What do you talk about when you talk about a concert?
- What do you like most about going to a concert?
- Tell me about your concert experiences.
- Are you comfortable at a concert and with the crowd?
- Do you like being a member of the crowd?
- What aspects of concerts are personally and emotionally engaging for you? What really grabs you and engages you further?
- How would an observer like me see your engagement? What does it look like?
- What do you dislike the most about a concert?
- How would an observer like me be able to see that uninvolved? What does it look like?
- How much do you want to be personally and emotionally engaged at a concert?
- Are there any barriers for people to become fully engaged in the moment?
- Do you feel any demands as a visitor? They could be from your friends, the audience, the band or the arranger.
- Do you experience being in control and being autonomous during a concert?
- At what moment are you the most bored or distressed?
- How is that involvement influenced by your physical and emotional energy?
- How does your friends influence your experience?
- How does technology influence your experience?
- Do you think technology could improve your experience and in what ways?

B. Evaluation Focus Group Questions

- Vad känner ni efter att ha spelat?
- Var det roligt?
- Skulle det här passa att spela innan artisten kliver på?
- Skulle det här kunna bidra till någon form av samhörighet?
- Skulle det här kunna förhöja ett engagemang hos publiken?
- Hur kan man förbättra den här idén?
- Skulle det här kunna leda till något dåligt?
- Skulle det här kunna göra att folk försvinner från stunden?

C. Participant Data

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>Last concert</th>
<th>Concerts per year</th>
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<tr>
<td>25</td>
<td>Male</td>
<td>Juli - 2016</td>
<td>2-3</td>
</tr>
<tr>
<td>25</td>
<td>Male</td>
<td>17 Dec - 2016</td>
<td>6-7</td>
</tr>
<tr>
<td>25</td>
<td>Male</td>
<td>Feb 2017</td>
<td>5</td>
</tr>
</tbody>
</table>
D. Brainstormed Ideas

a. Before
- Artist hints in the wild. Kent had a projector on a wall where fans could send texts to light candles.
- Display related hashtags in a feed
- Vegan feed further artists cause with themed feeds. Morrisys vegan feed where he might respond.
- Ticket-search toggle that you’re searching or selling ticket and get notified. Digital queue.
- Statistics about number of attendees
- Group friends that are known to attend. Link to features such as shared timeline, finding each other etc.
- Ticket notification 2h before concert only open up and show. Could also be proximity based.
- Musica.ly with the artist.
- Instructions to make signs only through text.
- Clothing suggestions from artist. (Kents white consort)
- Clothing suggestions from artist. (Kents white consort)
- Dressed moment post your outfit as a special moment.
- Pre-band show preband and link to their media. Maybe meetup.
- Meetup on suggested bars before show.
- When getting close to a friend attending notify with a thumbnail with their position.
- Welcome proximity based notifications showing images, how to reach an entrance
- Venue introduction through AR. Accompanied by nice info.
- Queue-check to know what queue has least people.
- Games encouraging to engage strangers. Earn points for discounts or other digital content.
- Generated tickets with photo of artist.
- Jacket-number digitalize it and keep it on the phone!
- Rubberbanding or hand-holding friends. Get notified if too far away.
- Find-my-friends with markers being bandmembers.
- Drink-order to your position.
- Bar-finder when in arena notify about nearest bar with a discount.
- AR beer fountain clearly showing where to find bar
- Light up phones with relationship status
- Doodle on large screen while waiting through phones.
- Tug-of-war between right and left side of audience. Spam hearts on corresponding side on screen.
- Echo-moment where artists commands groups with tasks.
- Limited merch offer sent out from artist. Or offer for next show.
- Map with interactive features for locating bars, friends, merchsales, earplugs and bathrooms.
- Artist updates through photos and text
- Final countdown when close to start.
- Place Ticket-moment on timeline.

b. During
- Count down sense vibrate phone closer to start.
- Show music videos or other shorter clips of band and other affiliated artists.
• Interactive countdown with doodles, tapping, and maaaybe distorted/enhanced singing
• Make the audience start the show by for example tapping their phones. Visualize how close to achieving goal on screen or phone.
• Have media and information about the preband.
• Alert other phones that person has fallen
• Show directions in phone through AR.
• Live snap audience send video or other media from stage encouraging others to do the same
• Interactive donations fill up the screen with donations supporting a cause of the artist.
• Send customized messages to people based on their interests on their online profile
• Being able to know who caught the drumstick may open up for even more personalized communication to them like artist chatting with them.
• Lyrics on phone
• Link to other performances of that song
• Stage dive moment Everyone get animations of planes or ocean on their phones
• Have limited offers during show. Maybe relating to certain songs and keep it limited.
• Artist use phones as instruments
• Audiences phones make simple instrument configured to sound good even if playing bad.
• Use compass to know if facing stage.
• Collaborative kiss-cam. Let known that now you can be displayed through your phone. Like in stadium but on phone.
• During interludes, show media on phone
• Audience vote for themes around which the band must improvise. Audiences may also control distortions and effects.
• If someone gets dehydrate order water to that spot.
• Let phone-screen light up peoples faces to make patterns on screen
• Encourage engagement by grouping people through screen color and have them compete in for example movement.
• Make some noise challenge to make more noise than other cities or parts of crowd
• Yellow-submarine-moment Get to see what the song is about
• Fireworks moment Different shapes and colors on phone and groups compete with tapping to make them cover screen
• Live Orchestra When phone lights up have audience members make noise or hold torchlight which artist can control to coordinate show.
• Food delivery to your spot
• Sign Put phones close to each other to make a collaborative sign
• Telia-filter purple rain
• Use cameras facing stage and enable scrolling through streams quickly. Swipe up to get closer to the stage and sideways.
• Branded beer filter showing you holding and drinking virtual beer.
• Ask to enter how you’re feeling through selecting emoji. Use to mark timeline later.
• Chat with Facebook friends attending or people added through bumping phones.
• Specific filters for specific songs
• Notify user filming a lot that the show is being professionally recorded.
• Limit users to only video 20min.
• Open source light show - audience controlled
• Taking Over have the audience control the light show by choosing color and having some control
• If phone battery percentage below 10% suggest charging station through notification. Show location
Buy through phone and place in coat enabled by digital coatnumber.
• Encore voting
• Encore filter "See you later"
• Suggest to recuperate with water at the bar when leaving
• Recommendations "While you're in Stockholm you might like Grimes favorite bar XXX in Gamla Stan"
• Ease exit with artist thanking for the show from behind the scenes
• Skyline filter show where the concert is going on and has been through AR. Glow around location

c. After
• 5 people get chosen to meet artist and can bring 1 friend. "Access code" get sent to phone for meet & greet and photo opp.
• Suggest bars and allow to check "attend". See where people are going.
• Bar Free entrance to after-party-bars.
• Afterparty with artist. Notify where. Maybe as reward for some challenge.
• Listen to the same playlist as the artist afterwards (show currently playing)
• You and me Camera filter with artist next to you or superimposed on face.
• Suggest rare digital content
• Timeline where you can see awards, highscores and moments
• View what you felt on timeline
• See where one the timeline movies where filmed and launch them and link related official content. Could be merch, music videos and stuff.
• Songs in videos links to the song in Spotify
• Automatic photo-collages for sharing.
• Video-montage of concert similar to how Facebook make friendship montages and being able to save and share them.
• Get visual content from concert from having attended.
• Collaborative timeline that can be contributed to over time. Huge timeline.
• Create a playlist of the setlist
• Suggest similar artist events coming up or more from the same label.
• Collect fan videos and interviews
• Special follow-up-videos or status updates from tour. Only for attendees
• Get limited offers based on what moments you participated in
• Limited edition merch at pop-up stores or even H&M
• See upcoming tour dates and see if friends are attending. Invite and endorse options too.