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Designing Technology for Active Spectator Experiences at Sporting Events

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ABSTRACT

This paper explores the active spectator experience at sporting events, by presenting and reflecting upon a design experiment carried out at a number of football¹ events. The initial hypothesis of the design process, leading to the design experiment has been that the spectator experience is not merely an experience of receiving and consuming entertainment. It is also heavily reliant on the active participation of the spectator in creating the atmosphere of the entire event. The BannerBattle experiment provides interactive technology in sport arenas with a form of interaction based on existing behaviour in the context. The work presented also argues for a need to overcome the inclination to designing technological systems that imitate or compete with the experience of watching the television broadcast of the game. Experiments such as the presented BannerBattle are cornerstones in our exploratory research-through-design approach to designing technologies for social experiences.

Author Keywords

Experience, spectators, sports, collective action, design experiment.

INTRODUCTION AND MOTIVATION

This paper deals with the spectator experiences of events taking place in arenas where thousands of people focus on the same game. In our view, spectator experiences in such places can be unique experiences that one engages rather than consumes. Therefore, in order to develop engaging and meaningful interactive technology for spectator experiences we took our point of departure in the social context around the overarching sporting event. It is this context, with all its rich detail, that engages the spectators in actively creating and participating in the collective phenomenon of being spectators.

The development of technology for sporting events is of growing interest both from commercial actors as well as within research context. Many designers and technology developers have seen the potential of using technology to enhance the spectator experience while being present at

the arena. However, the majority of the technological systems aim at providing a detailed view of the sport to the spectators. This is often done by measuring biometrical data about the players and showing statistic information of the game on large displays at the sport arena or on mobile devices (e.g. Ault et al., 2008; Bentley & Groble, 2009). The large displays furthermore present replays and close-up shorts of the game itself (Crawford, 2004). In other words, most often, technological systems at sporting events augment the sport on large displays by providing the on-site experience with an overlay resembling and to some extent simulating watching the event on television. In this way, the arena tries to provide the same opportunities and functionalities for the on-site spectators as for those watching the game at home (Crawford, 2004). We argue that acknowledging the intrinsic spatial and social qualities of being present on-site and being part of the crowd enable new technological designs to enhance the spectator experience, and further emphasize the active participation in the event. Also, this opens up a number of design potentials for creating novel forms of interactive technologies at sporting events.

Why do spectators attend the sporting event? What are the experiential qualities that go beyond staying at home watching the game on television where the transmission delivers much more details, replays, close-up shots, and statistic information provided by sport commentators? The spectator is placed in the stands sometimes with a great distance to the pitch, and in spite of that, many spectators prefer to attend the game rather than watching it on television. Sporting events provide the spectators with so much more experiential depth that cannot be delivered through broadcast, and we found it to be an interesting challenge to explore interactive technologies that could enhance and support these elements. As we will argue later in this paper, there are many other elements that contribute to the active and engaging spectator experience. Elements such as: being at the game with friends, cheering, chanting, drinking and eating, dressing up in merchandises, and sharing emotional and dramatically engaging experiences during the event.

This paper is structured with a presentation of related work to our design efforts, focused in two parts. Firstly, we will provide an overview of the existing literature in the field of spectator experiences, which is a quite broad

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¹ Football is also known as soccer in some countries.

field with contribution from many different academic traditions and fields. This will be done with a special interest towards what interaction design can benefit from these existing studies. Secondly, we will list some of the related technological experiments, prototypes, and products that we see as focusing on participation of large groups of spectators or other forms of social gathering. Following this, we will introduce our design experiment as well as our preliminary research into the “user-context” of spectator culture, in order to provide an understanding of our design choices and goals in the experiment. We will then discuss what happened, what we gained from this experiment, and how we can relate this to an overall view of how to approach the design of engaging interactive technologies for spectator experiences at sporting events. We provide a model that maps out the three main aspects constituting the spectator experiences in such contexts.

RELATED WORK

This section starts with a recap of the theoretical views considering the forms of spectator behavior we are working with, and then moves on to an overview of technological products, prototypes, and experiments that have already been reported in the HCI literature regarding spectators in a broad sense.

The active spectator

There have been a large amount of academic contributions that explore the notion of spectator experiences within fields of sociology, anthropology, criminology, psychology, and sport science, concerning topics like: fan violence and spectator aggression (Taylor, 1995; Wann et al., 2001), fan identity and culture (Redhead, 1997; Rinehart, 1998), the spectators as sport tourists (Fairley, 2003; Davies & Williment, 2008), and the everyday lived lives of spectators (Crawford, 2004; Stone, 2007). However, although these explorations of spectator experiences are approached from different academic traditions and topics, there are a shared acknowledgement of spectators as active participants rather than passive observers of the sport itself. In the following section we will present some of the perspectives of the active spectator.

Spectator experiences are often approached and thought of as merely events and interactions evolving during the game itself. But the spectator experience is also unfolding in broader spatial and temporal context: Spectators dressing up at home and wearing merchandise clothes, talking to friends about the upcoming sporting event, and following the sport-related content in media (Crawford, 2004). In this way tension, excitement, and expectations of the forthcoming sporting event are actively build up by the spectators and often in a social context. Fairley (2003) presents in her study, of spectators travelling to and from the sporting event, that the team’s success had minor influence on the spectator experience. The social relationship between the spectators was the overall motivating aspect of the experience (Fairley, 2003). This means that spectator experience actually pushes the boundaries of the sporting event to both include the spectators engagement in the

sporting event in their everyday life and that the spectator experiences also includes the social aspect beyond the sport it-self. The social aspect of the spectator experience is important for the spectators and especially at the sporting arena where the social atmosphere is a highly motivating element for actually attending the ‘live’ event (Crawford, 2004). Being a part of a larger group and having a social experience, at the sporting event, means a great deal for the spectators. Fairley (2003) states that the spectator’s identification with the other spectators might be a crucial factor in their engagement with the sporting event. Both Crawford (2004) and Fairley (2003) contributes to the notion of the active spectator by arguing that the spectator experience is more than a passive consumption of the sport it-self, emphasizing the importance of the actively constructed social aspect among the spectators.

The active spectator is manifested beyond the social aspect solely. Rinehart (1998) states how there are myriads of spectators that wants to be “players” in the sporting event. Not in the sense that they want to participate in the sport it-self, but in the event as a whole. As Clarke (1978) argues, the game is not just going on on the pitch, but the active and collective involvement among the spectators is a way of making the whole ground into social event. These activities, that are not directed at the sport it-self is a way of the spectators to actually embrace and co-create the sporting event. Redhead (1993) states that spectators have a great desire for participate in the sporting event as figure 1 illustrates, how the spectators actively engage in the sporting event by chanting, singing, and celebrating with flags and other merchandise.



Figure 1: Dedicated spectators co-create the entire event along side the sport activity taking place in the arena

As shown in these contributions, there is a shared acknowledgement of spectators as active co-creators of the event, rather than passive consumers. Participating as spectator or fan includes many activities ranging from everyday following and discussing the sports to social activities of engagement in sporting events. In spite of this, most often technological systems at sporting events seek to augment the event in a way that replicates the passive consumption of broadcast television. However, in recent years, a number of research and commercial

prototypes have explored active spectating and audience participation in- and outside the context of sports.

Active and participative spectator technologies

If we take a look at the interactive technology for spectators in a more general term there has been a growing interest in designing interactive technologies for spectator experiences, for example at museums (Dalsgaard et al., 2008), galleries, theatres, and concerts (e.g. Maynes-Aminzade, 2002; Reeves, 2005; Barkhuus, 2008). Some have done interesting experiments with large-scale interaction with audiences at concerts where the audience collectively interact with large displays playing the classic arcade game Pong (Maynes-Aminzade, 2002). Others have activated the spectators by letting them vote in song competitions (Barkhuus, 2008). These experiments are quite interesting and give an insight in how collective audiences can be collectively engaged in interactions with technology and how interactive technology can present spectators with a tool for expression. In relation to the argument we are trying to make here, Reeves et al. (2005) does not focus that much on the spectators' active creation of the event, but more on how the performer and designer of the performance equipment can facilitate differences in performance style and the resulting spectator experience. We agree with the authors that the performer-spectator relation can inform certain general aspects of the use experience. Nevertheless, we have refrained from using their framework in trying to describe the BannerBattle experiment, as our setup involves two groups of spectators performing with and towards each other at the same time.

When we turn towards the spectator experiences at sporting events the interactive technology for spectators of sports are quite rare. Spatially distributed sports, such as Rally, have been object for some research attention where mobile technology has been implemented to enhance the spectators' social experience (Jacucci et al., 2004; Esbjörnsson, 2006). And a similar approach has been developed in relation to sailing with the project SportCasting 2.0². However, when we look into what has been done with spectator experience at the sport arenas – in stadiums, courts or tracks – there are much less work to learn from. The work done is mostly concerned with the challenge of technological implementation of large-scale technologies at the arena. Ault et al. (2008) have created a mobile application for live information and TV streaming for stadium attendees. Bentley & Groble (2009) explored how mobile technology can be used at the live sporting event to provide spectators with information about player biographies, statistics, and multi-angle replays. Although novel and well implemented, this prototype does not move very much beyond the individual experience and the 'facts-and-data' approach mentioned earlier. It probably plays into some aspects of the social and active spectator experience, by providing data that can become a part of the ongoing conversation with friends in the stands and possibly

create temporal communities, as documented by Sun & May (2007). However, providing this information on a mobile display, in our experience, limits the social interaction of sharing the content somewhat.

Involving spectators in the creation of an engaging experience has also taken the form of using virtual reality tool as in for example done by Bardzell et al. (2007). Although this seems like valuable concept for activating spectators who are not present at the game, it surely disengage the spectators from the actual game, as they engage in their own game of basketball while following the score of the actual game next to the score of the virtual game.

Finally, we would like to mention the CHI 2004 student design competition, where the active participation to Olympic events like figure skating were achieved by giving the audience a direct vote as in for example (Aigner et al., 2004). Several interesting design ideas for involving the spectators in the sporting event was proposed in these entries.

By this general overview, we hope to emphasize that there seems to be a potential in designing for the active spectator. Several approaches have been explored already, but none have tried to focus on the crowd-style activities performed by groups of spectators at large sporting events. We believe that such a focus unfolds opportunities to address other of the elements that constitute a spectator experience at a live sporting event in an arena setting. Namely the physical, social, and highly engaged activities of spectator experiences

UNDERSTANDING SPECTATOR EXPERIENCE

In this research project, we are exploring a range of issues concerning sport, physical, and bodily interaction. Sports as a domain was chosen since it often entail some level of physical activity. Our interest in this has been to explore the boundaries of alternative ways of interacting with computers and how digital artefacts augment social and collaborative space. In regards to spectator experiences, we quickly decided to work with the large-scale events in arenas, as we noticed the mismatch between actual activities, the theoretical and systemic understanding of the experience of being a spectator, and the technologies we could see being developed for spectators. The project has been conducted within the multidisciplinary Interactive Spaces research centre, and the design experiment has been approached from computer-science, design-oriented, and humanistic disciplinary approaches.

We first conducted a series of ethnographically inspired participant observer field studies (Blomberg et al., 1993) of spectators at various live events; before, during and after. These studies to a large extent emphasized the participatory points in the literature, as well as gave us an insight into the creative and well-organized structure of the fans of football clubs. Furthermore, the trips with the fan-busses to remote games gave us a good link to the most dedicated spectators for later interviews and the design workshop.

² <http://sportcasting.org/home/whatis.php>

We started the design process by inviting a group of fans to a workshop on “the new arena experience”. The fans were all supporting the local club’s teams in basketball, handball, or football. Therefore, they had different frames of reference about the arena experience itself but they were all supporting the city-teams and it was obvious from the start of the workshop that they had a strong sense of kinship. The sporting events at the three sports arenas are quite differently organized and have different spectator cultures. At football matches there is a lot of singing organized by fan-groups, but there are often long breaks and the level of excitement on the stands follow the flow of the game. In both handball and basketball, the arena is more intense, as the game takes place in an indoor arena and the spectators are closer to the game. The sport is often more intense as the game rolls quickly back and forth with many goals and shifts from offensive to defensive plays. Furthermore, official channels often orchestrate the spectators at the indoor events more with music after goals and specific types of cheering at certain events. However, our hypothesis was that the three different sports could learn from each other, and that all three groups of fans would have the same desire to enhance all aspects of the spectator experience, including the social, non-game specific aspects.

With the workshop theme, “the new arena experience”, the participants were divided into two groups. First, the groups were asked to discuss the engaging elements of spectator experiences. Second, they had to mock up their desire for a new technology enhanced arena experience. To assist this process they had cardboard and other props available at our design lab. At the end of the day, the two groups presented their physical mock-up of the new arena experience.

The workshop showed us how much effort the dedicated fans put into orchestrating the cheering and how deeply they feel that they have a huge impact on the game being played. They want to get all the help they could get in becoming a strong extra player on the team.

THE DESIGN EXPERIMENT - BANNERBATTLE

Following the workshop and based on the workshop mock-ups and our insights from the fans, we designed the BannerBattle prototype. BannerBattle consists of two 8-

meter long displays positioned in front of the epicentre of each fan group. The two screens are connected on a dedicated network and display the same interface to both groups (see figure 2).

In order to enhance the spectators’ experience of participating in a friendly battle against another group of fans and being part of a larger group, BannerBattle focuses on the collective actions of each group. The level of activity of each fan group is measured via the sound level and rhythm of the cheering and singing that each group performs. We also include the physical activity of the entire spectator group, by analysing the spectators’ movements in a video-feed of the most active part of the stands. This way we capture the two most obvious channels used by the fans to express their dedication and support to the team: Their singing and cheering during the game, and the waving of flags and jumping around sometimes in random and other times in orchestrated movements. Fans bring banners with wild colours, and make and sing songs to taunt the opposite side’s fans. Of course, neither of these inputs are completely precise ways of measuring the activity of the fans, but they provide us with a link to the activities that the fan groups organize – either independently, by officials, or cheerleaders.

From these indicators we created an overall level of performance that we could use to compare the two sides’ fan groups. On the displays, we showed the live video-feed of each side’s fans with an overlay of the team-colours. The two sides were divided by an equalizer-style visualization of the live sound level of each side, where we showed live how the singing and cheering from each side clashed with each other. The side that was most active would then conquer screen-area from the other side and slowly push the opponent’s fans out of the way and to the far side of the BannerBattle display.

The idea with the BannerBattle was to visualize and enhance the interaction and battle between the fans and augment the activities on the stands, as opposed to only focusing on the actions on the field. We designed an open-ended platform for the spectators’ own expression of their experiences. By ‘open-ended’ we point to the fact that the interactive technology provided through the



Figure 2. The BannerBattle in play. The home-team’s fans in blue and white have pushed the away-team’s fans to the end. The equalizer illustrates the soundscape and indicates that the home-team fans are singing louder than their counterparts.

interface did not script the activities in any way, but could capture any form of activity the users would think of. Of course, the BannerBattle promotes being active and cheering but these activities are already taking place today. The open-ended-ness also points to our design intention that the technology could be appropriated in different ways over time. When the interaction is as simple as waving your hands and flags, shouting and observing how that affects your group's position, we expect that users would start to think of new and more creative ways to affect and challenge the BannerBattle. For example, by taking flags into the cameras view and making better songs with louder and longer notes, stronger rhythmic character, or to create more advanced visual patterns on the display by using their colourful merchandise and flags. As such, we hope that the BannerBattle is so open with respect to interaction that there is room for diverse interpretations and appropriations. And that the interactive interface would not replace existing modes of conduct or culture, but enhance and strengthen the qualities of the spectator experience of being on-site in person – with thousands others.

Testing the BannerBattle

We conducted a series of experiments with the BannerBattle at three football matches during 2009. These were well-attended tests with an average of roughly 10.000 attending spectators, of which approximately 3-4.000 could see the BannerBattle prototype during the game. Each camera's focal area captured around 100-150 people of the most engaged and dedicated spectators. In the following section, we draw out some of the most interesting findings based on interviews with spectators and from observations of the action as it unfolded. We talked to a total of nine spectators in semi-structured interviews. Most of the interviews were carried out in between the halves and after the games. A minor part was conducted on a bus trip with the local spectators. The interviews were done onsite and took point of departure in the spectators' experience of atmosphere at the current sporting event. We furthermore provided a phone number on the banner for people to give us feedback by SMS. With comments such as, "cool concept", "keep up the good work", "this is crappy", and "get us some beers", the SMS's did not give us useful feedback on BannerBattle. However, the comments could be seen more as expressions of spectators' experiences and their state of mind.

During the course of a game, the use of BannerBattle varied a great deal. The spectators' focus on the new technological gadget was of course challenged by the events in the game of football itself. Therefore, we saw interplay between the sport and the banner, where the banner moved between focal point to the periphery of attention continually.

At the first game, the home team quickly got the upper hand and the away-team's spectators were less engaged in singing and cheering. However, at one point, after 30 minutes of being increasingly silent, the away-team spectators suddenly started to sing very loudly. On the

BannerBattle, they went from a position of having been pushed to the very end of their side (see figure 2) to conquering almost the entire screen from the home-team spectators. In interviews following the game, we learned that a few of the unofficial 'cheer-leader' from the away-team group had noticed the BannerBattle and had an idea of what was going on. When the home-team spectators went silent in a less intense part of the game these cheerleaders encouraged everyone to start singing in order to beat the home-team at least on the display. One spectator from the away-team stated his experience of the BannerBattle like this: "There are two mood blocks indicating the sound-level of the fan groups. (...) At one point I saw people pointing and talking about the screen – and then we started singing".

Many of the spectators that were interviewed expressed their excitement about BannerBattle and they found it very interesting. And especially when one of the spectator groups was suppressed at the banner they gathered and started to interact. However, the 'open-ended' design of BannerBattle took the spectators some time to adapt to. Some spectators addressed that BannerBattle was hard to understand at first because the type of interaction was open for the spectator's interpretation and appropriation. One spectator expressed in an interview: "It is cool, but you have to get to know the concept a bit... But it is new and it could have a positive effect [on the atmosphere, ed.]".

Several of the away-team spectators we talked to, also found it to be unfair that the home-team fans were always winning. The home-fans were in majority and could sing louder and longer, and since there was no reset-point in the BannerBattle setup, the away-team spectators could never get back on top of the battle, but stayed behind for too long. In an updated version of the BannerBattle interface, we tried to accommodate some of the feedback and experiences we got in the first two games. The second iteration had a more lively movement of the border between the two sides in order for the losing side to come back easier. We also included a way to level out the influence of each side so the game would seem fairer, even though one side had 10 times as many spectators to help their cheering.

What did we learn from BannerBattle?

The purpose of the BannerBattle experiments was to inquire into the complex notion of spectator experiences at sporting events and to explore how alternative interactive technology would unfold at the arena. In the following section, we will point to some of our findings.

We explored how the spectators' attention shifted from the sport itself to the BannerBattle during the game. This focal shift depended a great deal on the intensity of the game. When the game lost its intensity the spectators turned their focus towards the banner and started interacting with it. And when the game re-gained its intensity the spectators focused back on the game. This shift from the sport towards the banner illustrates very well the game's and banner's role in their spectator experience as objects of a shared attention.

The 'open-ended' design of BannerBattle created opportunities for the spectators to appropriate the banner in the use. This was seen in how the away-team's spectators were interacting with it. As one spectator said in one of our interviews: "When they [the home-team's spectators, ed.] are 20 times more than us it is hard to compete (...) But we waited until they got more quite and then we started". The away-team's spectators organised their singing and chanting to make a raid against the dominance of the home-team's spectators in order to conquer the banner. The 'open-ended' structure of BannerBattle made it possible for the spectators to collectively interact with it in their own way. The spectators actively appropriated the interactive technology so that it was meaningful for them. However, our three tests did not present the spectators with enough time to deeply explore the open-ended-ness in the sense of more advanced interactions styles as we aimed at. Nevertheless, we still argue that a permanent installation would encourage the spectators to explore and challenge the potential of BannerBattle.

BannerBattle fostered a social interaction among the spectators. In our previously presented citation from one of our interviews the spectator explains how they talked about the banner and then started to sing. Furthermore it acted as a way for the spectators to stating and pitching themselves both to their fellow spectators but also to the other team's spectators. BannerBattle acted as a way of providing opportunity for collective interaction and battle between the spectators.

REFLECTION: 'SPECTATORING'

The spectator experience is a complex matter that cannot be seen only as a passive consumption and fascination of the sport. As we have explored in our studies the spectator experience is constituted in a variety of elements of, which primarily have been ignored when designing interactive technologies for spectators. These technologies have been overly focused on individual receiving of 'fact-and-data' and the spectator as a passive consumer. With the relatively simple BannerBattle experiment we wanted to explore the other aspects of being a spectator. How to support and enhance the creative, playful and deeply collective way spectators contribute to the overall event.

What we want to present in this section is how spectator experiences at sporting events can be viewed as a whole consisting of three main aspects: The aspect of the sport, the event, and the social aspect.

The social aspect of spectator experiences is of vital importance. As we experienced in our BannerBattle experiment the spectators very much saw themselves as a united group supporting their team. Furthermore, they act as a group that collectively interacted with BannerBattle in order to beat the opposing group of spectators. Participating in the activity of spectating together with friends, families, and fellow spectators makes the sporting event into a very social activity.

The aspect of the event provides the opportunity and the frame for spectators to express and present themselves

throughout chants and cheers. And especially to state themselves to the rival spectators, battle them in being the most dominating spectators in the arena, and expressing their experience to the other spectators.

The aspect of the sport itself is, of course, a significant aspect of the spectator experiences. The spectators talk about statistics of the game, the performance of the individual players, the team's history, and other sport related topics.

In other words the spectators engage in their experience on different levels. Firstly, they socially engage in a fellowship supporting their favourite team. Secondly, they bodily engage in expressing and battling the other spectators. And lastly they intellectually engage through their knowledge about the sport itself. It is through this engagement of the spectator experience that provide the opportunity for a deep emotionally engagement.

Therefore, when we inquire into spectator experiences at sporting events there is an interesting potential in acknowledging that the spectator is actively taking part in co-creating the entire event. Spectating is a sports-like activity in itself, which the spectators participate in. As Fairley (2003) argues, the sporting event may be a frame for social experiences that are lived, remembered, and felt. The spectators are much more than passive observers of the sport itself. Crawford (2004) states that the sport should not be seen as an one-way process of consumption that the spectators consume, the spectators themselves constitutes to the atmosphere within the sporting venue. Even though we agree with this view of the spectators as an integrated and active part of the sporting event, we need also to argue that this does not mean that the sport itself is trivial and of no importance. As our experiment illustrated, there was a constant interplay of the spectators' focus between the sport itself and themselves. For instance as we described, in moments when the sport itself got less intense the spectators started to socializing, chanting, or battling each other. And when the sport again turned more intense the spectator's focus turned towards the sport itself.

We therefore state that the spectators participate in a highly social, active, and self-representational experience of 'spectatoring' that revolves around the sport itself. Not just as a frame for the event and these activities, but also as an essential aspect of the spectator experience.

To illustrate the variety of constituting elements of spectator experiences we have drawn from what we experienced and learned from our field studies, workshops, and experiments and mapped the elements into figure 3. Of course, when mapping such complex matters as spectator experiences a model will induce a reduction of the complexity. However, the aim of this model is to have an analytical tool that illustrate and lets us discuss spectator experiences when exploring the potential of implementing interactive technology.

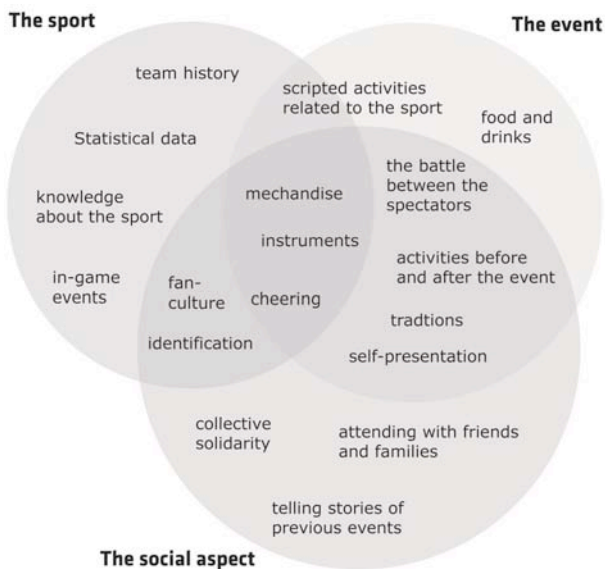


Figure 3. : The SPEX Model of elements that constitutes the spectator experience at sporting events.

What the SPEX model illustrates is the variety of elements and the relationship between the three main aspects that constitute the spectator experience. Within the three main aspects, a variety of elements are located. All the elements have been conspicuous in the research, both in the ethnographically inspired field studies, the user workshop, and in the BannerBattle experiments. They are elements that describe each aspect, and possibly several other elements could be added in further research.

Designing interactive technology for ‘spectatoring’

With the notion of spectator experiences at sporting events presented in the SPEX model, we see a gap between the spectator experience and the technology designed for spectators at sporting events today. As mentioned earlier, there is primarily a focus on the sport itself in technological systems for spectators. We are not to say that this technology cannot engage the spectators. We acknowledge that spectators might use these ‘facts-and-data’ to gain deeper knowledge about the sport. The sport at sporting events is of course an essential part of the spectator experiences. And especially a part of the spectator’s intellectual engagement in the sport. However, the spectator experience on-site is quite unique, and can only in few aspects be reasonable compared to the experience in front of the television. As the majority of the interviews and workshops we did with spectators about why they attend the sporting event instead of watching the game at home with the much better view of the sport itself; they answered, that it is a completely different experience, because the experience in front of the television lacks the engaging atmosphere of the other spectators chanting and supporting their favourite team. We therefore see that there is a potential to go beyond ‘facts-and-data’ technology and to explore the core aspects of the spectator experience at the sporting events that are centred on social, creative and engaging co-experiences. (Forlizzi & Battarbee, 2004)

As our studies show, in line with Fairly (2003), the shared and social attention of the spectators is significant

aspects of the experience, and there exist an unexplored potential to emphasize this at the sporting arena. Interactive technology that embrace and address these issues will have the potential to support the shared experiences among the spectators. As argued by Forlizzi & Battarbee (2004), interactive technology in shared attention have the opportunity to “lift up the experiences”, because the meaning of the experience is negotiated and discussed among the users. Ludvigsen (2005) present a framework for social interaction, where the most engaging level of social interaction is ‘collective action’. A state where participants, in our case spectators, engage in a shared activity in which they invest themselves and their opinions. The collective action level furthermore has a strong focus on participant collaborating towards a shared goal (Ludvigsen, 2005). With the BannerBattle experiment, we aimed at exploring how interactive technology could create or emphasize the shared and social experience among the spectators, by explicating, the spectators engagement visually. We found that in the less intense periods of the game the spectators joined in battling the other spectators and at times reached what Ludvigsen (2005) state as collective action, among the spectators. Their shared attention was turned towards the banner display and their collective interaction and collaboration with it.

In this way, the technology got the spectators shared attention and emphasized the spectator’s relations among themselves and in contrast to the spectators that they were battling in chanting, cheering, and supporting their favourite team. The influence of the shared attention of the technology is quite a novel aim of design of interactive technology for spectator experiences at sporting event. However, other researchers have pointed to the importance of these aspects at sporting events when design interactive technology. The developers of the TuVista mobile applications (Bentley & Groble, 2009) state that they discovered how spectators shared sport-related content on their mobile phones among fellow spectators. Based on this, they furthermore call for a better understanding of how the attention on the mobile application is shared among the spectators (Bentley & Groble, 2009). We see this as an emerging interest in the social aspect of the spectator experiences and that we need to understand the creative and social aspects of ‘spectatoring’ when we are to design interactive technology for spectator experiences at sporting events.

If we take a look at BannerBattle it does, in contrast to most technological systems at sporting events, not focus at the aspect of the sport itself. It focuses on the two other aspects illustrated in the SPEX model, namely the aspect of the event and the social aspect. It could therefore be argued that BannerBattle likewise does not embrace the full breadth of aspects of the spectator experience by omitting the aspect of the sport. However, our aim with BannerBattle was to setup an experiment exploring interactive technology at sporting events by inquiring into these other rather unexplored aspects. BannerBattle addresses the unexplored potential, concerning the overarching event and the social aspects of the spectator experience, in being a part of a collective and acting in

opposition to another large group of people, with all the self-presentational aspects that follow from that. In the sense we wanted to utilize existing practices in the interaction and technological support of the spectators creative contribution to the event itself.

CONCLUSION

In this paper we argue that spectator experiences at sporting events at sports arenas goes beyond the passive consumption of the sport itself. The spectators are actively engaging in and co-creating their collective experience. We present the research experiment BannerBattle that addresses aspects of the spectator experience that are often overlooked in existing technologies – particularly the social aspect of co-creating the event through collaborative collective action, and how the self-presentational aspect of being a spectator is a big part of attending the live event.

Based on our findings we present the SPEX model of the elements that constitute the engaging spectator experience, at sporting events, divided into three main aspects: The aspect of the sport, the aspect of the event, and the social aspect. We furthermore argue that there is an unexplored potential for designing interactive technology that create new opportunities for engaging spectators in such contexts. The SPEX model opens up a broader perspective on the entire spectator experience, which can be used to explore the potential of interactive technologies for active spectating at sporting events.

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