

The Density of Events Model (DEMO): Exploring Density and Temporality as Key Aspects of Experiences in Events

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Abstract—The use of IT and digital media changes the notion of experience in relation to events. This paper presents a study of event experiences, and, in this case, a specific type of events, i.e. academic ceremonies. Based on the results of the study, it is shown that earlier theoretical models do not include the use of IT and digital media in relation to events in order to explain the dimensions found. The Density of Events Model (DEMO) is developed and further explained. Finally, a discussion about the usage of the model as well as proposal of future work is made.

Keywords—Experience; User Experience; UX; Events; Event Experience; Ethnography; DEMO.

I. INTRODUCTION

The phenomena of *experiences* are nowadays present everywhere in our society. Experiences are offered when playing computer games, eating at restaurants, going shopping, attending concerts or even driving a car [1, 2, 3, 4, 5]. The intended experience may be joy, fear, trust, surprise or any feeling in between. Some say that we live in an experience economy [4] while others refer to it as a post-materialistic experience society [6], where we, for instance, value experiential purchases higher than material ones [7, 8]. The world has been said to be saturated with goods and services that are more or less undifferentiated, assigning the greatest opportunity to create value to staging experiences [9]

Staging experiences is a key aspect of events [3, 4, 10]. Though there does not exist an agreed upon definition [11], the one presented in Encyclopedia Britannica [12] will be used for a shared understanding. Accordingly, an event can be defined as a social occasion, which occurs at a given time and place. The events targeted in this paper mainly refer to pleasurable ones. Examples would be, conferences, fairs, sports events, ceremonies, festivals, and concerts. From a psychological perspective, an experience can be explained as emerged "(...) from the integration of perception, action, motivation, and cognition into an inseparable, meaningful whole." [6]. Furthermore, experiences are always present - even telling a friend about a certain extraordinary event in one's life is a form of experiencing [13].

This paper describes a study conducted in order to explore how the use of IT and social media extends the event experience for the visitor; in order to deepen the understanding of possibilities related to social aspects and digital technology. Communication is a facilitator for remembering [14] and digital technology, and inherently also social media, is a facilitator for communication. A point of departure in this paper is that use of social media is a tool to both increase the density and extend the temporality of the experience of attending an event. This is grounded in the notion of User Experience (UX) [c.f. 15, 16, 17], which is one of the most central influences in the Human-Computer Interaction (HCI) discipline today [18, 19, 20]. To be able to say something about the experience when it comes to the use of digital artifacts today, the UX heritage has to be considered.

The specific point of departure relates to theoretical frameworks of how experiences are to be understood, i.e. tourist experiences [21] and experiences in general [3]. These sources are examples of theoretical standpoints where the parameter of time is present. It is combined with different other parameters in the related studies. However, in this study, we will propose a new parameter in this context, the density of the experience. This is suitable when explaining more thoroughly what happens when it comes to experiences at any given time in relation to the event. A model including the density parameter, named The Density of Events Model (DEMO), was created and will be further explained in the paper. This evolved in the analysis of the data in the study, as a framework with the purpose to better understand the event experience and its' relation to the use of IT and digital media.

The paper is structured as follows; first, the notion of experience is discussed, especially in relation to IT and digital media use. In that context experiences are discussed as User Experiences (UX). Further, similar studies made on events are discussed. A methodological discussion is made followed by a walkthrough of the found results in the study. In the next section, the model developed based on the results from the study, are described. Finally, some conclusions are made and a brief discussion ends the paper.

II. DEFINING EXPERIENCE

In order to better understand the notion of experience, the definition proposed by Forlizzi & Ford [16] was used as a point of reference for a shared understanding.

Forlizzi & Ford [22] have divided experiences into *experience*, *an experience*, and *experience as story*. *Experience* refers to “the constant stream that happens during moments of consciousness. Self-talk or self-narration is often the way that people acknowledge the passing of this kind of experience” [22, p. 419]. *An experience* has a beginning and an end and induces some kind of change in the person. *Experience as story* refers to how we use stories to condense and remember experiences, by communicating them to others [22]. The final concept was later on substituted with *co-experience* [23]. It refers to User Experience in social contexts; it is about “Creating meaning and emotion together through product use” [23, p. 263].

Whenever considering experience in usage of IT and/or digital media, it is important to look into the (black) box of User Experience in order to really understand what is at stake. It is therefore truly important to keep the central definitions above in mind when doing that. If not, the results will not pinpoint anything important enough since true knowledge happens only in the details.

III. RELATED WORK

Since the turn of the millennium, User Experience has grown rapidly within the Human-Computer Interaction (HCI) community as digital technology has become common in society [17]. It refers to the “(...) experience(s) derived from encountering systems” [15 p. 6]. Encountering refers to “using, interacting with or being confronted passively” [15, p. 6] and systems “(...) denote products, services, and artifacts (...) that a person can interact with through a user interface [15, p. 6].

Even though, *experience*, in general, is a common buzzword within the HCI community, but also in society at large, research related to digital technology within events in order to affect the guests' experience, is rather limited. However, attempts have been made to enhance the experience at conferences through the use of active badges to facilitate group interaction in large meetings [24] and by introducing interactive conference guides [25]. The conference guide provides access to the event program through shared public displays and mobile devices. Other versions of conference support tools are technologies that support the attendees' exchange of ideas, both in facilitating the dialogue on the spot as well as preserving it for later purposes [26]. The Timeline Interactive Multimedia Experience (TIME) system uses tags to gathers data from social networks, based on a person's scheduled events, in order to facilitate the process of planning and navigating [27]. Studies have also been conducted at academic conferences using

proactive displays, which respond to people nearby in a contextually appropriate way, in order to augment the social space [28].

In a similar vein, others have addressed the importance of services related to events, not only targeting individuals but also supporting co-experience within groups [29]. For example, attempts have been made to enhance the experience for spectators at an indoor ice hockey rink by visualizing collective heart rate to bring intensiveness to the audiences' experience [30]. The study focused on the significance of the technological equipment to create a sense of togetherness in the audience. Another example is the CoStream, which supports spectators in sharing the same event at the same location. Through live video sharing, the experience can be co-constructed without people necessarily sitting together in a stadium or concert hall. The CoStream showed to enrich social and spatial awareness as well as encourage active spectatorship [31]. Furthermore, Ludvigsen & Veerasawmy [32] presented a research experiment; called the BannerBattle, where spectators at a soccer game competed collectively against the opposing teams fans. By making noise, the two groups of fans battled to take over the color of a digital screen, and actively co-created the experience together.

When reviewing research related to digital technology and event experience, it becomes clear that it generally focus on technology that is designed for the context, and are thus new to the event guest. This refers to applications as well as actual devices. However, most people today have smartphones, which will be brought when attending an event of any kind. Accordingly, it appears relevant to study the use of smartphones from the perspective of event experience effect, as a result of social activities.

IV. METHODOLOGY

The study presented in the paper included one observation study, two participatory observations as well as an online survey. A large amount of qualitative and quantitative data was collected over the course of 18 months.

The context where the data was collected was the events of academic ceremonies at a Swedish university. At this specific university, the academic ceremonies include Spring Graduation and Annual celebration, i.e. two ceremonies every year. Because of this continuance, these events are interesting objects of study since they can be studied longitudinally in order to find gradual changes over time, as the conditions of the events only change slowly from one year to another.

As mentioned above, the methods used were observations, participatory observations [33, 34] and survey [33]. As a method, the observations offer qualitative, first-person data, while the survey offers quantitative data. By conducting participatory observations, the aspect of obtrusiveness is minimized [33] while also offering access to data on social media

that otherwise would not be available due to access issues related to privacy settings.

The observational studies were conducted in 2014 – 2015. In the first study, the one conducted at Spring Graduation 2014, an observational study was conducted. It could be described as being a “quick-and-dirty” ethnography [35]. This term refers to a short period of time spent in the context of interest. However, and of more importance, the main purpose of the study is to give guidance in what is important aspects of studying further, and in more focused studies. For instance, and what the founding researchers of the defined ethnographic approaches recommend, concurrent ethnography could be used [35]. This was also done in the following ceremonies, i.e. Annual Celebration 2014 and the according to academic ceremonies in 2015.

Examples of what were found to be of more interest in the initial quick-and-dirty ethnographic study, i.e. to study more, all include circumstances where IT and/or digital media were used. One example was a Photo Booth, where the guests could go and take a banquet picture late in the evening. This was a rich context of interesting findings and therefore, in the Spring Graduation in 2015, further participatory observations were conducted in relation to the Photo Booth. As guests at the banquet, the authors could obtain observations in direct relation to the Photo Booth, without disturbing the other guests in their actions, as a “fly-on-the-wall” methodological approach [35]. Additionally, as another example of interesting IT/digital media usage was the posting of messages and/or images on Facebook and/or Instagram during ceremony and banquet. Here, a version of digital participatory observations were conducted, in order to get insights into activities related to the event. Postings were gathered in as many ways as possible – in the near social network of the researchers as well as from the people included in a later survey, sent to the events guests of honor, targeting IT and social media use in general in relation to the event.

Analysis of data retrieved in the studies above is further described and discussed in later sections of the paper as well as the results.

V. RESULTS

The empirical study was conducted during 2014 and 2015 in the context earlier described. Below, the results are described.

A. Observations – *Quick-and-dirty ethnography*

During the observational study, conducted as a quick-and-dirty ethnography study with the purpose of finding interesting aspects to look further into. This was done at the Spring Graduation in 2014.

In this study, the extensive use of smartphones in many was noticed – in many different contexts. Both before the event postings were found, “Going to the Spring Graduation...” sometimes combined with a picture of the person in a gown or attire. Further, as the audience in the ceremony, it seemed as people had no problem in posting on Facebook in the middle

of a ceremony. Finally, at the banquet, other postings were found. Pictures on decoration, on each other and on the food were examples of postings on Instagram and Facebook.

Another interesting IT/media-use was a Photo Booth. This was introduced at these events for the first time at the Spring Graduation of 2014 with the purpose of giving the guests an opportunity to take memorable pictures. This turned out to be a success. People were very interested in taking their picture in a Photo Booth like this. The researchers found a number of interesting insights here. Due to the positive response of the Photo Booth, it was reintroduced in following academic ceremony events, and therefore also possible to investigate further.

Below, insights from the following events are introduced. These are investigations made, as participatory observations made at a concurrent ethnography study, i.e. here were more focused observations carried out.

B. *The Photo Booth*

The participatory observations conducted in relation to the Photo Booth at the Annual Celebration in fall 2014 again proved it to be extremely popular. Not only was the crowd in this part of the restaurant large but also very socially vivid. It stood out as different than perhaps all of the other contexts at the banquet – here people talked both with known as well as unknown people. The Photo Booth showed to be a place generating a sense of community among guests.

The Photo Booth area was located in a corner where a photographer photographed guests against a photo wall. Also, it included a long line of queuing people. When standing in this line, people had the chance to see the taken pictures in real time, as the pictures were instantly uploaded to a server and a screen was hooked up to this and visualized the picture stream. People were very occupied discussing their own as well as others’ pictures. It was a true icebreaker.

Examples of comments were; “Everyone looks so beautiful!”, “Did you see your first picture – you looked gorgeous!”, or “Haha – she had her hand over his eyes, look!”. Other examples were people discussing how unknown people might be related. Some expressed that the picture was going to be nice to save as a memory, another wished to show it to her mother, as she never gets to see her that dressed up.

The generated sense of community did not only apply to people who knew each other previously to the event, but also those unknown to each other. When pictures showed on the screen people cheered if the ones on it were present, even if they did not know each other. One couple asked another couple if they had seen their picture, and added: “The pictures look so good, don’t you think?”

However, the Photo Booth also created a sense of loss of control for the guest. Some people became

uncomfortable when the pictures showed to be less flattering, such as having one's eyes shut. The photographer were, in some cases, asked to remove a few pictures guests were unhappy with, which was not possible as they were uploaded automatically to the Dropbox account.

Overall, the observations of the Photo Booth were very rich. This was mainly due to two reasons; first, it was very popular and, therefore, rich in the sense that it happened a lot. Second, and also very important to be aware of, it was highly accessible to observe as the communication was happening out in the air, face-to-face between people publically. Almost like watching a soap opera, i.e. easily followed. Because of this, this IT/media-use could be said to be a good example where the IT/media-use very obviously raised the density of the experience of the event.

C. Social media use

In terms of activity on social media, the observations were limited to the authors' circle of friends, due to privacy restrictions on platforms such as Facebook and Instagram. In the survey, however, a higher number of subjects, early unknown to researchers, were included. However, here the data is retrieved as data *about* the usage and does not actually give examples of the usage *itself*.

First, observation findings from Facebook and Instagram from the network of the researchers will be reported. Here, several accounts were made of people mentioning or in other ways highlighting the Spring Graduation on social media prior to the event. For example, a local newspaper published an article, including a movie clip regarding preparations at the event, which was shared on Facebook by one of the organizers. Another person posted a picture of the finished decorated stage in the auditorium with eleven involved people tagged, saying that the preparations were done and ending with "Let's go!". It generated 92 likes, not only by people known to the publisher, but friends and family of the people tagged in the picture. The picture also generated discussions in the comments, including jokes and cheers. One person commented by posting a picture of himself, doing a funny face, with the text "I'm on my way!". A guest of honor posted several pictures on Instagram depicting her preparations before the event, including her husband sewing some alterations on her dress, as well as the couple all dressed up together.

Later, at the ceremony, a music class from a local school was to perform together with a known artist. The teachers recorded a clip from the practice session, as well as a clip with a greeting from the solo artist addressing the music class, which was posted on the school's Facebook page. At this specific occasion, no observations of postings were done during the ceremony.

After Spring Graduation, a guest of honor posted a picture on Instagram of herself on stage at the ceremony, sent to her by a friend. Another guest

posted a picture from the ceremony, thanking for the evening and highlighting some positive aspect of the event. Pictures from the Photo Booth were also posted on social media. One example included another attending guest being tagged in it, accompanied by an expression of gratitude to a friend who helped with clothes and styling. Two of the people responsible for student marshals working at the event took pictures of them, which later on were shared through a Dropbox account as a way of showing appreciation of the student marshals' well-performed work.

The survey included in the study, was sent to the guests of honor (promovendi and award winners) at the Spring Graduation of 2015 in order to collect quantitative data. It targeted their use of IT and social media in relation to the event. The total population at the Spring Celebration 2015 was 500 guests, whereof 79 were guests of honor with their native tongue being Swedish, and thus recipients of the survey. 54 responses (68,3%) were attained. Demographic data is presented in table 1.

The survey questions focused on IT-use, mainly use of smartphones and social media use before, during and after the Spring Celebration 2015.

TABLE I. DEMOGRAPHIC DATA.

Male	27,8%
Female	72,2%
Age	< 30 = 6%, 31-40 = 46%, 41-50 = 28%, 51-60 = 16%, > 60 = 4%
Uses smartphone daily for other activities than to call or send SMS/MMS	75,9%
Activity on social media	Not at all = 24,1%, Facebook = 68,5%, Instagram = 33,3%, Twitter, blogs and other = 20,4%
Most common activities on social media	Comment/like others posts = 76,6%, Post own pictures/text = 72,3%, Shares material posted by others = 42,6%
Uses smartphone to access social media	Less than 50% of the times = 39,1%, More than 50% of the times = 37%, Almost exclusively = 23,9%

Results worth mentioning here is for instance; 32,1% stated that they had mentioned or in some way touched upon the event prior to it, through digital technology, such as social media or e-mail. The most common forum used was Facebook (48%), followed by e-mail (44%), SMS/MMS (36%) and Instagram (16%). 76% had posted/sent text, 40% pictures, and 28% had shared/commented/liked other peoples posts on social media.

The Spring Celebration consists of two parts, a ceremony in an auditorium, followed by a banquet. Promovendi and award winners are seated on stage during the ceremony. 71,2% of the respondents knew that one or several of their personal guests in the audience used their smartphone to take pictures, and 17,3% to film during the ceremony. Out of them, 50,9% is known to have shared some material on social media, and 34% via SMS/MMS/e-mail. 18,5% of the respondents posted own pictures on social media, and 18,5% posted pictures/film clips from the ceremony on social media sent to them by others. 46,2% posted the material the same day, 65,4% the day afterward, and 23,1% two days after or later. Furthermore, 44,4% stated that they had shared/commented/liked someone else's social media post from the ceremony.

57,4% of the respondents used their smartphones to take pictures during the banquet, and 14,9% sent SMS/MMS related to the event. 29,5% posted own pictures on social media and 20,5% posted pictures/movie clips sent to them by others. Out of them 50% posted pictures/movie clips the same night, 55% the day after, and 10% two days after or later. 54,2% of the respondents stated to have shared/commented/liked social media posts by others, related to the banquet.

During the banquet, a Photo Booth with a professional photographer was available to the guests. The pictures were displayed on a 27" screen next to the booth, and available for download from a Dropbox account, which could be accessed via a QR-code or URL. 54,2% of the respondents' chose to take a picture in the Photo Booth. Out of them, 20,7% posted it on social media, and 13,8% sent it to others via MMS/e-mail. Of the respondents who had not accessed the picture yet, 53,8% planed to download it as a memory.

Out of the respondents who had shared some kind of material related to the event, 63,3% stated to have attained responses in the form of comments/likes on social media, 40,8% in the form of private communication, such as via mail or SMS, and 36,7% through verbal communication. All of the respondents experienced the response as positive.

All of the results above are examples of occasions and happenings in the specific context observed, i.e. academic ceremonies at this specific Swedish university. However, altogether the findings described, present a rich picture of how IT/media-use enhance and enrich the experience of the event. Overall, two

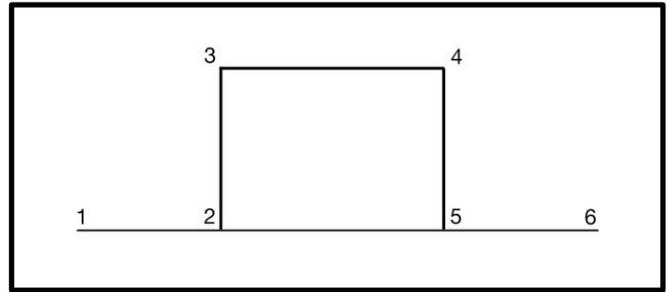


Fig. 1. The Springboard Metaphor.

types of enriching aspects were found, i.e. *temporality* and *density*. The first includes all the examples where the event was experienced before, during and also after the event itself. The second includes the examples where IT/media-use gives *more* to the event, i.e. a more rich experience.

All this pointed to the direction that a new theoretic model was needed in order to better explain and understand such events. Below, related frameworks are presented. These are then modified into a new model, The Density of Events Model (DEMO).

VI. THE DENSITY OF EVENTS MODEL (DEMO)

The Density of Events Model (DEMO) was developed, based on the results from the study presented in this paper, in order to facilitate the understanding of the experience of an event.

It was developed based on Jafari's [21] Springboard Metaphor (fig. 1) which he used as a base of reference in order to describe a tourists movement in time, from leaving the ordinary everyday life for a temporal getaway to something nonordinary and the process of getting back to the normal again. The metaphor has also been used by Mossberg [3] within the marketing sector where she focuses on the creation of experiences for customers in service encounters, as she states the metaphor to be useful to increase the understanding of what happens inside people's heads during an experience.

The DEMO highlights three main points related to event experiences; first the two enriching aspects, i.e. temporality and density, and finally the origin of the enhanced density is also included. The final point, in order to further shed light into how the experience could be understood. Below, we first describe the three points in the model and later we show the model itself.

Temporality: As Jafari [21] as well as Mossberg [3], DEMO includes the temporal aspects of before, during and after an event, i.e. an experience may be initialized before the actual event occurs and it may be extended afterward. Mossberg [3] describes before to be comprised of planning and anticipation. During the experience, the ordinary life is left behind with a romanticized view on life. Strong bonds are created between the customer and the activity, which can be strengthened through rituals and symbols, in order to create a sense of togetherness between participants.

After, the customer returns to everyday life, where other people may not be interested in listening to his or her stories. However, based on what is seen in this study, it is obvious that there does not exist a clear-cut

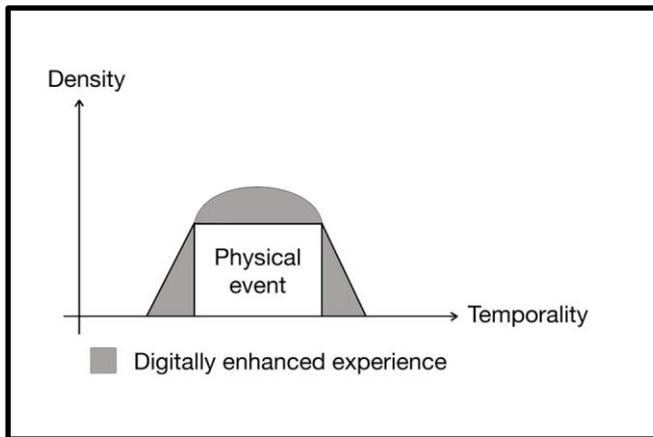


Fig. 2. The Density of Event Model (DEMO).

line between before and during an event, likewise there is no clear-cut line between during and after. Rather, there is an increasing slope, building up to the actual event, as well as a decreasing slope, fading out afterward. Neither Jafari's [21] nor Mossberg's [3] models visualize these occurrences.

Density: DEMO also depicts the density parameter as an additional curved layer in the during-part of the event experience. This is to visualize the idea of not only the physical world affecting the experience of an event but the digital world affecting it as well. A number of examples in the results could be raised here – as well in the case of the Photo Booth.

Origin of enhanced density: Lastly, the model divides the experience of an event in digitally enhanced density and physically enhanced density, in order to target and visualize the different dimensions affecting the event experience.

VII. CONCLUSION

This paper presents a model designed to shed light on important aspects related to experiences of events. Earlier work has focused a great deal on the event *itself*, which of course is central. However, with the emerging trend of use of IT and digital media in everyday life, this gives another type of experience – which is prolonged in time and more rich. The model developed in this paper – The Density of Events Model (DEMO) – include three explaining dimensions, i.e. the temporal dimension, the density dimension and finally in what medium or platform the experience is taking place. This gives a basis to further investigate the nature of the experiences in relation to events.

VIII. DISCUSSION

Experiences in relation to events are extremely important as an object of study when it comes to use of IT and digital media. First, it is important for event producers to acknowledge IT and digital media as having a huge potential for further raise the quality of

the experience in their events. It is also important to help these actors to get a deep understanding of this, since they need to be able to predict what will happen at the event, in advance. To have control of the event is a crucial factor when it comes to production of event. Decisions are often made with predictability as a key factor. If a happening in a future event easily can be predicted to be a success, is an easy decision to make to give it a go, otherwise often producers choose not to do something if the outcome includes a high risk of failure. In order to do better predictions, we need better models. The density of Events Model is one step further in this strive.

Future work may include doing more studies, on other types of events, in order to further elaborate on the model, and also to show if it is generalizable outside the type of events studied in this paper.

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