"Real, but Glossy" – Technology and the Practical Pursuit of Magic in Modern Weddings

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ABSTRACT

Planning a wedding is arguably one of the most complicated collaborative tasks people ever undertake. Despite the commonplace use of technologies in "wedding work," little research has looked at this from an HCI perspective. Based on an interview study, we illustrate how technology is used to deliver the sought-after fantasy and a practical, yet entertaining, affair. We identify four ways that technology helps people do this: (a) by allowing much of the practical planning work to become "invisible;" (b) by easing navigation through the delicate rules of family configurations made manifest in the guest list; (c) by helping create a spectacle-like event that adroitly balances excess and realism; and (d) by documenting the wedding in ways that allows re-experiencing the magic after the event. The paper concludes by discussing the implications of this pursuit on social graphs, place, and photography, contributing to the literature on technology and major life events.

Author Keywords

Weddings, magic, life events, spectacle, marriage, ritual.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

"As one of the few recently democratized portals to reenchantment in life, the wedding does not so much hold up a mirror to who we really are, but instead offers a temporary dream world for all in attendance, a celebrity-like world of elegance, elaborateness, emotion, and ease. Other rituals can promise lavishness, but none can convey a memory of once having felt like Cinderella and Prince Charming." – Otnes and Pleck [22] (pp. 15-16).

A wedding is arguably the most transformative and meaningful event in a person's life. Particularly in North American and British society, brides and grooms are encouraged by the wedding industry and the media to make their wedding the "perfect day," as the above quote makes clear. This day is expected to be an elegant, dreamlike affair that celebrates the personalities, history, and future of the couple in the presence of adoring friends and family. In the United States, weddings are generally one of the largest occasions for spending money - not as much as purchasing a home, but certainly conspicuous in its scale and excess [16].

To be sure, not all weddings are lavish, expensive events. The North American and British model – if it can be treated as homogenous for the moment – is certainly not representative of weddings everywhere. Even within this context, it is certainly not uncommon to hear about people opting out of conventional wedding arrangements. However, a feature of weddings that is widely accepted is the need to create a special event that is set apart from the everyday. Making this day special is a significant effort, if not sometimes a Herculean task that requires months of dedicated effort. To begin with, planning a wedding unfolds in a unique social setting, where the needs and preferences of two or more families, as well as the friendship groups of the marrying couple, must be acknowledged. Beyond this, these diverse concerns must be weighed against financial costs and the desire to have a "once-in-a-lifetime" event that will be remembered for years to come. Of course, romance needs to be sustained throughout; the couple must not fall out before they get to the altar.

A range of technologies are mobilized in this process. General purpose websites such as Pinterest and Etsy provide inspiration and ideas for wedding themes, favors, flowers, and dresses; this is to say little of the material to be found in online bridal magazines, blogs, and portals such as The Knot [28]. Productivity software such as Microsoft Office or Google Docs are used to track invitations, balance budgets, and manage to-do lists. Mobile users can find a thousands of mobile apps dedicated to wedding planning (a search for "wedding" on the Google Play store yields over 1000 results, for example). Start-ups and established companies alike are also profoundly concerned with the event itself, launching products and services specifically for the wedding ceremony, for its recording and documenting, and

much else besides; the bridal industry is a competitive multimillion dollar affair where companies try to acquire "a customer for life" [20].

Weddings are, in other words, already suffused by technology. Yet, and to date, there appears to have been relatively little in the HCI or CSCW communities that focuses on weddings as a domain for technology use in its own right. There are various papers that look at weddings indirectly, or as motivating examples for a broader category of action. For example, Zarro, Hall, and Forte note that wedding boards are common repositories in their investigation of Pinterest [35]. Other studies focused on photography [18, 24], automatic video segmentation [4], and intelligent agents for wardrobe selection [17] have used weddings as motivating examples.

There is also a growing body of literature looking at major life events and HCI, including the birth of a child [9], divorce [21, 34], moving to a new home [26], and the death of a loved one [19]. All of this literature draws into focus the changing social, psychological, and technical infrastructure of the modern world. However, weddings themselves have not yet been studied, despite their importance in economic, social, psychological, and cultural terms. There might be a range of reasons for this but as CSCW has turned away from its origins in work systems towards technology and society in the large, this absence seems all the more conspicuous: after all, weddings are fundamentally collaborative and central to the organization of relationships between people.

Following the framing of life events as crucibles for technology adoption, design and use, this study of weddings provides CSCW with a fertile arena for studying how existing technologies are appropriated in a setting with heightened stakes. Our findings provide material for future work through design exploration, and highlight some of the deficiencies in current systems that cast weddings as a form of project management. It is finally our goal to provide the CSCW community with a rich example of how technology is mobilized to make an event feel special, magical, and memorable. Weddings, like other life events, push our understanding of technology use beyond the everyday into the exceptional.

We organize the paper in the following way. First, we set the scene by providing some background on Western-style wedding culture. We then present an interview study we undertook to understand the interplay among culture, technology, and the practical action of making a wedding happen. Our approach emphasizes the agency of people, and how their practices may be thought of dialogues with the possibilities offered by Western wedding culture. To put it in terms familiar to the CSCW community, our approach is to treat people, as Garfinkel advises, as co-producers of the world known-in-common [8]. We show how technologies are used to plan, organize, augment, document and recall

weddings. This suggests how technologies for weddings might unfold through sensitive, informed future design.

SETTING THE SCENE

The Modern Wedding: Elaborate and Growing

Weddings are extraordinarily variable occasions within the North American and British contexts. From a "shotgun" elopement to Las Vegas to a formal weekend-long affair with hundreds of guests at a Gothic castle, the wedding is a concept that is continually reinvented. In Martin King Whyte's book *Dating, Mating, and Marriage* from 1990, he outlines some of the demographic trends associated with weddings based on a large-scale survey held with a general population of the USA. He points out that receptions have become more common, and more people are attendance (an average of 50 guests in the 1940s, versus 150 in 1990). He goes on to point out that engaged couples are more likely to hold bachelor or bachelorette parties now than ever before, and participate in events in the lead-up to the actual ceremony [33]. When we consider that each of the approximately 2.1 million weddings held in the US each year [3] may contain multiple elaborate events, a turn towards technology to manage these affairs seems not only logical but near-essential.

Technologies for Weddings

Like weddings themselves, the landscape of available technologies specifically targeted at weddings in the North American and UK context is continually changing, and an exhaustive list is not possible here. However, blog posts and articles frequently summarize the latest options available for brides and grooms. One published on May 7, 2013 at PopSugar suggests "8 ways to completely digitize your wedding planning," and overviews software packages for coordination, design inspiration, shopping lists, registry creation, group communication, sketching, budgeting, and tracking RSVPs [23]. Applications can be found that integrate with existing platforms like Facebook (e.g., Weduary allows users to create a Facebook-integrated wedding site [32]). Other apps focus more squarely on mobile device experiences, such as Appy Couple [1] which offers pre-designed wedding websites and associated functionality for the iPhone.

Technology of course is not limited to the planning process; it is integral to the successful execution of the day. Coordinating vendors, guests, and other attendees relies on mobile phones, email, and websites to coordinate. The use of CMC on the day may even include video chat systems for broadcasting the event to those who cannot attend (as with one bride in our sample, who shared her wedding ceremony in India with her uncle in New Jersey). This bride was hardly alone; one marketing research firm found that over 50% of brides considered using Skype for their wedding [29]. iPhone apps such as Wedding Party allow guests at a wedding to upload photos automatically to shared photo albums that the bride and groom can then browse [31].

Cultural Visions of the "Perfect Day"

As this brief summary of available software tools makes clear, the weddings we are focusing on here cannot be understood without reference to mass media and modern forms of consumption. Weddings are nothing if not contemporary, even if they echo the past. Nor are they vague and underspecified affairs, even with the turn away from religious solidarity towards more "liquid forms" of connection [2]. Weddings in North America and the UK are enormously managed cultural productions (as they are elsewhere, doubtlessly, though with different nuance and form).

While a full treatment of the cultural apparatus that is weddings is not possible here (see Otnes and Pleck [22] and Ingraham [13]), what can be noted is how cultural theorists have critiqued the valence of the ideology around "magical white weddings" in the North American context particularly. This ideology is said to produce not only ephemeral consumer desires but also to instill unrealistic and potentially harmful notions of gender norms [13, 20]. As De Certeau notes, ideas about identity and social practice (such as those exemplified by weddings, though these are not something he writes about himself), provide a space for "possibilities and interdictions" [6]. Foreshadowing some of our findings from our empirical work, people have to navigate their way through their own experience and the relationship between that and the all-too-often perfect world portrayed in ideologies of various kinds:

"These websites that are supposed to give insight into how to plan your wedding but I don't think I used a lot of the websites, and it's because they're very much focused on the princess bride phenomenon." – Bride, Couple A

"People try to outdo royalty – it's not reality, you're losing the purpose of what a wedding is…. sites like ruffled.com have real weddings but even those real weddings aren't real weddings – these are wealthy Californians who have everything at their fingertips." – Bride, Couple N

These quotes, representative of the study we outline shortly, illustrate the navigation that is part of our concern, placing as it does the human as the engaged creature in the center: at once beholden to the magical wedding, but indignant towards its implications and frivolousness. The term "magic" in our sense refers to a practical pursuit – a property of the wedding that couples strive to make happen. We borrow our concept of magic from ritual scholars Ronald Grimes, and wedding researchers Cele Otnes and Elizabeth Pleck, who argue that magic is perceived transformation by ritual where specific objects and actions casually produce the sought-after transformation [10, 22]. Whatever individual choices people make about the balance between "real" and "magic," the sheer logistics of weddings – aligning the objects and actions for the ritual – is a prominent and real concern for those seeking the transition into marriage.

INTERVIEW STUDY

As outlined above, our purpose is to expose the work that goes into a wedding, and how technology is mobilized as part of this. Our data derives from semi-structured interviews in which participants to talk about how they used technology in relationship to their wedding. The interview began with demographic information and then turned to how technology was used in three time periods: before the wedding, the day of the wedding, and after the wedding. Key questions for each of these periods were: "How did you use technology to help you get ready for your wedding?", "What was your wedding day like? How did you use technology on the day?", and "How do you use technology to manage things you kept from your wedding?" Interviews took place over the course of 6 months, and each session lasted between 1 and 2 hours. All interviews were transcribed.

Data were analyzed using an affinity diagramming process where the first author identified codes in the data using open coding. Codes were reorganized, collapsed, and reread in the context of the literature. An intermediate schema was then discussed by the research team until a central theme concerning the production of magic emerged, and codes were reorganized under this heading.

Participants

Participants were recruited primarily through advertisements on a community website for southeastern England; this was supplemented with convenience sampling and snowballing. Though it would have been preferable to enroll subjects from a wider geographical locale, we treated these subjects as sufficient for at least an initial inquiry. Where possible, we asked to speak with both partners in their homes in order to allow participants the use of materials in telling their stories, but accommodated where scheduling or travel conflicts made this infeasible by speaking to only one partner or conducting interviews by telephone. In order to participate, participants simply had to be willing to talk about their wedding, and we placed few restraints on what this meant. This resulted in a diverse set of participants (Table 1).

As our goal was to gather rich accounts of participants' experiences in this domain, the heterogeneity within the sample was helpful because it allowed us to make some illustrative contrasts. For example, Couple N consisted of two divorcees who recently started their own professional wedding photography service, and were planning their own wedding as well. Couple O was a same-sex couple who invented their own style of wedding. Destination weddings, international/multicultural weddings, and non-Western weddings were also represented. However, and as should be clear, no strong claims are being made about representativeness; our set of subjects are simply diverse and the character of their experiences sufficiently rich to warrant investigation and reporting.

FINDINGS: THE PRACTICAL PURSUIT OF MAGIC

"From a photographer's perspective, there's a disconnect between what's real and what's a dream. Some people say your wedding is supposed to be a dream and your happiest day of your life. We've had clients get upset when it looks real. People want their faces blown out where they don't have wrinkles or movement – the cheesy dream filter – people have a feeling that even if it's phony – they're not real weddings…You have to be aspirational and have a nice gloss to the presentation but it's a fine line to tread – you want it to be real but glossy." – Groom, Couple N

All participants were familiar with the idea of the perfect white wedding, but recognized that it was a fantasy that was produced and reproduced by movies, magazines, and television. Participants avoided words that suggested this sense of delusion, but instead described their wedding using words that reflected its experiential aspects and importance in their lives: "amazing, very special, a day about the two of you," (Couple B); "almost perfect" (Couple M). Others emphasized the wedding as a time to reinforce social bonds: "a family affair" (Couple E), "intimate" (Couple L). Still others emphasized their reaction against the fairytale white wedding by underscoring their restraint in planning and execution: "a relaxed thing" (Couple K), "low profile" (Couple L), "a party thing, a very nonchalant, non-wedding vibe" (Couple O).

To briefly outline our findings, we start with the observation that the execution of a "magical event" requires *managing the visibility of effort.* Technology is involved in hiding some aspects of wedding work and highlighting others. One of the key ways technology is employed is to invite the *participation* of friends, family, and members of society more generally. This in turn enables the creation and execution of *spectacle* – that is, the deliberately unusual performance of an act that demands attention and entertains the assembly, and is increasingly accomplished using consumer technologies. Finally, in order for spectacle to be recognized as a measure of life made special, it must necessarily be *documented;* cameras and increasingly mobile phones make this possible. Technology not only records the event, but is applied in a way to assert the "magic" of the event thereafter.

Before the Big Day: Managing the Visibility of Effort

"The thing about the wedding is all the work happens beforehand. If you have planned everything the way it's supposed to be, it's just execution…So on the wedding day, you just go ahead and have a good time." – Bride, Couple A

Most of the guests at a wedding arrive with the expectation that a certain set of things will happen: that everyone will arrive at the right place at the right time, that the couple will go through with the ceremony, and that the reception will be festive. On the surface, the day should flow smoothly

Couple	Months since wedding	Years together (total)	Ages and genders	Interview type	Occupations
A	15	3.5	**35 (F),** 27 (M)	Face-to-face (outside home)	Researcher, contractor
B	5	8	**29 (F), 28 (M)**	Phone	Teacher, industrial designer
C	6	9	**30 (F), 35 (M)**	Home	Graphic designer, graphic/web designer
D	16	4	**26 (F), 28 (M)**	Phone	Ph.D. student (philosophy) (both)
E	180	16	**40 (F), 39 (M)**	Phone	Stay-at-home mom, project manager
F	12	6	**38 (F), 40 (M)**	Phone	Information architect, copywriter
G	42	13	**32 (F), 32 (M)**	Home	Book publisher, financial advisor
H	2	7	**29 (F), 29 (M)**	Home	Communications manager, scientist
I	Engaged 2 months	8.5	**26 (F),** 27 (M)	Phone	Medical doctor, accountant
J	36	4	**29 (F),** 29 (M)	Phone	Ph.D. student (archaeology), IT/software
K	15	7	**26 (F),** 29 (M)	Phone	Homemaker, sales advisor
L	36	6	**37 (F), 49 (M)**	Phone	Translator, project manager
M	31	5	**30 (F), 49 (M)**	Phone	Stay-at-home mom, sales assistant
N	Engaged 1 month	4	**29 (F), 31 (M)**	Home	Photographer, user experience manager
O	27	7	**33 (M), 34 (M)**	Phone	Non-profit development, TV producer

Table 1. Participants (15 couples). The 26 individuals who participated in an interview are highlighted in bold.

and appear to occur effortlessly. All those we interviewed explained that what guests experience is actually the final output of an enormous amount of effort on the part of the wedding organizers. They explained too that the appearance of success requires a great deal of work – to seem effortless is a task in itself. At the same time, and apparently opposite to this, some effort must be made visible to particular people at particular times. Some kinds of work express and convey such things as gratitude, sincerity, love, or humility. All participants talked about the challenge of managing the visibility-invisibility trade-off of these types of work. Following on from Star and Strauss, we lay out here some of the "indicators" of work participants described in order to artfully manage visibility [27]. We first remark on the invisible work that couples performed, and then turn to the ways in which couples made their efforts highly visible in other dimensions. As we shall see, these two sides go hand-in-hand: invisible work makes visible work more valuable, more demonstrative; visible work draws attention away from the pedantic and logistical, making things invisible and, in some respects, making space for the magical and artful.

Participants consistently remarked on how choosing a date, hiring vendors, organizing travel, and administrative work, had to be "hidden away" from the eyes of most guests, but demanded significant coordination, planning, and the use of technology to manage the process. As in the workplace, spreadsheets, documents, to-do lists, and other project management software was critical to its accomplishment. Each couple had a different way of achieving this goal, with some using email to manage their list of items, others using Google Docs, and others using Microsoft Office.

"I used a Word document of what to do. My friend was teasing me it's like a thesis that I've done. I probably still have it – that this has to be done, this has to be bought, and where to buy it, and making a big list in a Word document and when it was done, erasing the points." – Bride, Couple J

In selecting a technology to help manage the administrative work, participants commonly sought options that allowed them to distribute work among a small set of collaborators beyond the couple themselves. This usually involved parents, siblings, close friends, and the bridal party. For example, the delicate process of choosing a wedding dress was accomplished by identifying a subset of "collaborators" whose opinions were valued, and setting up a convenient infrastructure for soliciting and reflecting on those opinions.

"I made a private Facebook album of my wedding dress choices and only shared it with my bridesmaids who were in other places all over the country." – Bride, Couple D

Another compelling example came from Couple H, who "inherited" a spreadsheet template from the bride's sister that they then adapted to their own wedding – adding and removing columns that were missing or superfluous, insert-

ing pivot tables to explore the guest list, and so on. Wedding planning, like many workplace projects, involved small-scale coordination before producing a final "result" that is made visible to a larger audience.

Work is not just hidden wholesale from the congregated assembly on the day, but is selectively hidden and revealed to particular "insiders" including, in some cases, the couple themselves. Couple K, for example, wanted to be insulated from the work involved in wedding planning and purchased a package at a destination resort in Cyprus where a wedding planner handled the logistics of the ceremony and reception.

"I found a wedding planner online and emailed her and we arranged it all through email. It was difficult to tell whether it was real or not. I didn't speak to them on the phone…It was worrying, it was all through the internet, I could have gotten there and they might not've been real. But at the same time, she was good and organized and made sure my paperwork was into the town hall there." – Bride, Couple K

Ultimately the bride and groom arrived to find that the ceremony was arranged, the table was decorated, and that the guests' accommodations were booked. By choosing to hire a planner, the couple shifted their workload to a local expert, but this resulted in another level of "information hiding" – this time from the bride and groom themselves – that turned into a fear that the whole affair was not actually real. In this sense, the "magic" of the wedding came partially from how effortless it was for the whole thing to be accomplished.

While effort may go into hiding the drudgery of coordinating and executing a wedding, there are times where effort must be made visible. Consider this discussion of thank-you cards.

Bride: "It's not acceptable to send thank yous by email, it doesn't seem right…"
Groom: "Because they're personal."
Bride: "Yes I guess it doesn't suggest like you've put enough effort into it."
Groom: "Yes and you could have just copy and pasted the same message."
Bride: "That would be nice wouldn't it?" – Couple H

This quote illustrates several points about making effort visible. First, effort is indicative of a relationship and of the involved parties' interests in maintaining that relationship – the thank you cards are "personal" in this way. To use technology to reduce this effort, such as by copying and pasting emails, diminishes in some way the investment in the relationship that the senders are willing to make. However, this investment in relationships comes at a cost – writing cards by hand is tedious, slow, and potentially more expensive than mass-producing cards. The bride's lamentation – "That would be nice, wouldn't it?" – captures this tension. Couples at once want to reduce the effort that goes into planning a wedding and are quick to adopt tools for that pur-

pose, but purposefully eschew tools that may suggest they are lazy, ungrateful, or frivolous about the credibility and gravity of their wedding. As it happens, many current systems for managing the efforts around a wedding overlook this distinction by providing tools for automating all aspects of the wedding (e.g., tools for mass-inviting Facebook friends). This is something we shall come back to in the conclusion.

What makes this circumstance somewhat unique is the fact that the organizers use technologies selectively for their ability to *manage the visibility of their efforts*. This is not merely for functional purposes, but in order to generate a sense of wonderment that is sought for in weddings. Hiding effort in the right ways, while revealing it in others, contributes to making the wedding feel like "it is meant to be:" it is somehow magical.

People and Participation
Part of this is consequent on how weddings are occasions where an audience – friends, family, coworkers, and so on – congregates to witness something. Our interviews with couples highlighted the tensions associated with this process of inviting and involving people. Those who participate in the event are not any old set of people – they have to be the *right set of people*: those who it is believed "ought" to come to the marriage, those people that "must" be invited out of obligation, those it would be "nice" to have; the ambiguity of these words suggests how this is far from unproblematic.

"We both come from very large families…so we had about 100 people who were just family people, and then our friends, because both of us socialize in groups of friends. Within those groups, obviously there are some people who we don't really have that much of a relationship with other than when you see them in social situations. But it would never be people you'd call, but it would be a bit awkward if you didn't invite them to the wedding because you see them socially." – Groom A, Couple O

In other words, participants spoke of their weddings as times to take stock of their social networks. While some invitees (e.g., the biological family) are an easily identified starting point for the guest list, there are others who are more distant: casual acquaintances who, though likely encountered more frequently than most family members, are seen as less involved. Their status is unclear: should they be invited, or not? Our participants struggled with these questions, and used Facebook, email address books, and other social media to help them identify and determine who should be invited. This was especially pronounced when considering the cost associated with each additional guest (the bride from Couple A emphasized that every bride can report the cost per guest off the top of their head). The same social media that could be seen as a resource for compiling the guest list also exacerbated this problem by making the engagement and the upcoming nuptials more public.

"Now that you're engaged and your wedding is coming, it seems like more people will Like your page. Like 'Oh I want an invite to the wedding'." – Bride, Couple I

One technique some couples reported for attempting to side-step these complicated questions was to hold a destination or international wedding, where the logistics and cost of travel would serve as a forcing function for a small guest list. Still others had to be selective about who the "right set" of people for each part of the wedding was.

While some used destination weddings as a way to escape the need to involve many people, technology enabled new configurations where the people involved in making the wedding happen need not even be in the same place. Couple D lived in Los Angeles but held their ceremony in New Jersey by coordinating with the bride's mother. Couple G lived in Toronto but held their ceremony in New Orleans, and booked all of their vendors sight-unseen. The bride from Couple J lived in England, the groom lived in Saudi Arabia, and the ceremony was held in their hometown in India.

"Because I was living in England and he was in Saudi Arabia, we were always dependent on computers, Google, Skype, Windows, all those things. We had to plan for everything through the internet and we had to see the prices, do the selections, because my mom is from Calcutta and she didn't know what to buy…I went to India for my wedding 2 days before and everything was done through seeing what to buy and where to get it on the internet." – Bride, Couple J

Interesting here is the fact that the internet enabled the couples to perform the "work" of planning a wedding even if they did not necessarily have the bodily ability to see the venue, taste the food, or hear the band beforehand.

Not all people who are invited are invited to participate in the same way. Some take on more responsibilities or perform special actions, while others are expected to stay out of the process and simply appear and witness the event. Technology changed when and who could participate in the lead-up to the wedding. For example, Couple D shared a playlist on Spotify and used Facebook to ask guests to help select songs that they wanted to hear at the reception. In this sense, technology enabled participants to involve more people than they previously would have been able to, and allowed them to take on new roles as enabled by the technology.

Configuring participation – who will give speeches, who will attend which event – is also a highly variable and intricate piece of social labor. All of this occurs even before the wedding takes place and continues beyond the wedding day as well. Couple F noted that while on their honeymoon, they were delighted to discover that guests became Facebook friends and were commenting on one another's posts – *"it's created this really cool group of friends that didn't exist before."* With technology configuring participation

both before and after the event, we now turn to how it enables forms of participation during the wedding day itself.

Spectacle: Giving Them Something to Talk About
Whether it is something as modest as giving a speech at a wedding with 20 guests, or something as flashy as indoor fireworks at a wedding with 800 (with Couple I), creating the right amount of spectacle was a consistent goal among participants: after the right people gather and the roles are assigned, magic demands action.

Unusual Experiences
One of the primary ways that couples achieved a sense of spectacle was to provide their guests with experiences that they would not encounter every day. Special experiences were arranged to demarcate and mirror the importance of the day, and these came in many forms: music, dancing, food and drink, elaborate costumes or formalwear, photo slideshows, giving speeches, party games, throwing the bouquet, providing small novelties at the tables, photo booths, and so on. Technology was similarly used in order to provide guests with unusual experiences. Couple K gave the children at their wedding disposable cameras in order to keep them entertained, and enjoyed reviewing the often silly photos that the children took. Couple B used an iPad in order to create a video booth at the reception where guests could record a message for the bride and groom. More prosaic, everyday forms of technology were woven into the more unusual ones: all couples described their guests using mobile phones to take and post photos throughout the day. In this way, using technology contributes to the occurrence of the event; it is made more special and noteworthy because family and friends are involving themselves through the use of these technologies in the demarcation of the day.

Personalization
As we saw at the outset, North American and British wedding culture is something that many people seek to resist – even if they cherry-pick certain acceptable and preferred aspects from it. Our couples worked to make the activities and tone of their wedding day a crafted experience, one that alloyed their disdain for the commonplace or "tacky" and yet remained somehow traditional and fashionable. Participants frequently used the term "personal" to refer to this task of making the wedding reflective of the couple's personality. The internet was a constantly-regarded source that affirmed cultural standards and norms, tacky or refined as they may be, but provided a vast set of examples of personalization:

"I was happy to find there were a lot of alternatives to that online…Rock 'n Roll Bride and Alternative Bride. Both of those were quite nice in the way that they showed you. And they had lots of forums where people talked about all of the alternative things they did or the way they did it their way." – Bride, Couple A

Personalizing aspects of the wedding helped to create a sense of spectacle – guests might reasonably attend expect-

ing one type of experience, only to be served with a different one. As the quote above illustrates, these personal touches worked in subtle ways. The groom from Couple G explained:

"I suppose you do want it to reflect you a little bit, and you want it to be interesting for people and not just feel like the same lame idea everyone else has had...I suppose it was partly for personal satisfaction just to make it more interesting for ourselves." – Groom, Couple G

What couples struggled with is the fact that in order to have a wedding, it must seem magical, but practical; traditional, but personalized; recognizable as a wedding but unique nonetheless. No longer limited by the number and variety of materials available locally and to-hand, the web enabled participants to select from nearly endless combinations of options. This personalization was another form of work that was selectively hidden and revealed to create a sense of spectacle. Technology can present the opportunity and perceived need to make an event as unique as possible.

Limiting the Role of Technology on the Special Day
With all of the lengths that people go to in order to transform themselves and their surroundings for one day, it is not entirely surprising that technology was commonly seen as a symbol of the everyday, and accordingly an uncomfortable presence on the wedding day. Only certain people could use certain technologies and for certain purposes. Many of the brides in the sample chose to rid themselves of their mobile phones on their wedding day, seeing it as too symbolic of the frustrations of planning up until that point:

"I felt like I had spent a year organizing it, and on the wedding day I did have my phone around in the morning and then I left it at my mum's house…everyone I know was going to be there, so I didn't really need it." – Bride, Couple H

What is even more interesting here is the fact that this bride not only associated her phone with the headaches of planning and organization, but on the day, it became functionally useless to her because all of the people she could potentially contact were already physically present. Indeed, this may be one of the few times in life where one's entire social network assembles in person. Thus, a wedding prompts the utility of some everyday technologies to diminish, while the value of others increases enormously.

"I was glad there were all these photos and I didn't have to take them because I could just focus on being at the party and seeing all these people and living my wedding day, and not having to do that, be distracted by taking photos. I can see how taking photos might be distracting for someone if they're standing there watching someone do their first dance through a lens." – Bride, Couple D

As this quote shows, the bride wished to avoid using technology at her own wedding, but others were uniquely enlisted to do so on her behalf. The way they did so reminds

of the problems of defining participation and attendance at a wedding. Photographers, videographers, and DJs do work at a wedding, but curiously are not attendees (c.f., Everett Hughes's "Good People and Dirty Work" [12]). These individuals are sanctioned to perform the necessary work of documentation and entertainment so that the rest of the congregation may instead focus on the pure aspects of participation.

Documenting the Magic Day
Participants brought this about in two primary ways: going to great and creative lengths to document aspects of the day itself, and to make reminders of the day easily encountered and visible in the time following the wedding. In both of these goals, technology played a central role.

Documenting the Day
All of our participants documented their weddings (or planned to) through photos, videos, websites, and documents. They did so in a highly coordinated, though common sense, way: through structuring the documenting practices around the features of the event, and ensuring that these features were there for the documenting. They knew ahead of time what was worth documenting, and made arrangements about how the documentation would take place.

The most obvious manifestation of this was in the planned presence of a photographer or videographer at the event. Participants saw both positive and negative aspects of this. Some saw the photographer/videographer as an outsider, an uninvited guest; others saw these individuals as necessary because they were able to capture elements of the day in ways different from their friends and family. Couple F represented several of the couples in the sample:

"[Our friend] captured like this whole, and he put together an amazing video. I would never have considered a videographer at the wedding, because I just think that's crazy, but in retrospect it was such an amazing gift that they gave us in putting all that together. If it was a video-for-hire then it might have changed the tone of it a bit...I can't watch it though, because I cry too much." –Bride, Couple F

In the cases where a friend or family member undertook the role of videographer, the output was treasured all the more, perhaps because of this: at least they were welcome even if they were doing work rather than participating. Participants often coordinated with their videographer or photographer to create a "shot list" – predetermining the set of shots that needed to be taken on the day. Couple N, the professional wedding photographers, noted that this list is commonly compiled through collaboration between the photographers and the couple, with the couple identifying the important people, and the photographers responsible for gathering the people on the day, arranging them in the shot, and ensuring it is actually taken. Examples of shots include ones like "couple with bridal party at church" or "groom and his father." The value of the shot list became particularly evident when speaking to the bride from Couple J:

"I regret not having a proper photo of me, my groom, and my mom and dad...I'm the only daughter so the 4 of us together. My mom was very busy then and she wasn't paying attention to have a photo done but now I so wish we had a proper photo of us together." – Bride, Couple J

The shot list illustrates again how weddings are about particular times where particular people are engaged in a particular activity that is especially meaningful or important – the (sought for) magical moments. Missing a photograph of an uncle eating at the reception is fine; missing a photograph of the first kiss is not. One is prosaic, not to be documented; the other is special, to be revisited, shown, talked about for years to come. At the same time, documenting attendance is crucial: this is hardly surprising given the time, effort and skill put into selecting those who are invited. Kirk et al.'s study of video creation and storage confirms our own findings [15].

Photos and videos were not the only types of mementos that were kept from the wedding. Participants kept a wide range of physical artifacts: the wedding dress, corks from the champagne bottles, flowers from the bouquet, copies of the invitations, the guestbook, and so on. These objects were valued due to their role in the achievement of the day, and were seen as irreplaceable but somehow still secondary in importance to the photos. For example, the bride from Couple D was representative of the sample when she talked about how it was important to place these mementos in perspective:

"I do have a sentimental attachment to this dress I wore for my wedding, but I have the photos, and I have the husband, and the sentimental attachment isn't tied to me holding onto this thing. I want to donate it to this place called Brides Against Breast Cancer." – Bride, Couple D

For technology design and use, this would outwardly suggest that capturing particular moments for the official record is more important than capturing the entire event from multiple angles. This might also have implications for ways of filtering through large sets of photos or videos, by focusing on these particular moments as "search terms." Furthermore, there is an ethos associated with holding onto materials from the day – the rule of thumb was not that "keeping more is better." These are issues well covered already in the HCI and CSCW literatures (see, for example Cosley et al. [5]). Weddings have special moments of spectacle that act as indices into the event and orient documentation efforts.

Re-Experiencing the Magic
Despite the effort put into documenting the event, our participants rarely spent a great deal of time reviewing the results. The mere fact of creating the documents was obviously more important than any planned revisiting of them [24]. Nevertheless, our participants did make some efforts to put photos in places where they would encounter them. Some of the more obvious ways were to make a wedding photo

one's Facebook profile picture, or the background image on one's phone. Some couples kept the playlist of songs that they used at the wedding alongside their other playlists, and would revisit it. Participants valued photos as places to "go" when they wanted to relive aspects of their wedding. For Couple K, they substituted for visiting the actual wedding location.

"Yeah I go through the photos and the emails from the lady that organized it, they're still saved in my Hotmail. So I occasionally look through them again. It's really nice because like I said we got married abroad it's not like we can drive to where we got married and say 'Oh look that's where we got married.'" – Bride, Couple K

Participants also talked about how their lived experience of the day was so frantic that the photos made it possible for them to actually revisit the day in a way that they weren't able to experience the first time.

"I've really enjoyed watching the video and looking at the photos. It really brings it back because it does go in a bit of a blur when you're the bride and groom." – Bride, Couple H

The first few months after the wedding was regarded as a time for talking about and working with the mementos. This was a kind of timeframe or window that followed the event where revisiting it is expected and indulged, and the production of photo albums, memory books, thank you cards, and so on is done.

"For ages afterwards I intended to make one of those photo books, you make them online and have it printed but I just never got round to doing that…I suppose once the event has passed there's no deadline for getting it done so there's nothing to motivate you into thinking 'I should have that done by so and so's birthday' or something like that. I am still stuck kind of half-intending to do it." – Bride, Couple G

As this quote illustrates, the period of time following a wedding is at once an acceptable time to make a wedding album, but without a firm deadline in place, it can be delayed indefinitely. While some participants felt pressure to produce the album as a gift to their family members, and many were eager to see their photos, the level of engagement with photos tapered off over time. In fact, Facebook and other photo sharing services often surprised participants, who – long after they finished thinking about their wedding – found new photos of the event. This was seen as a welcome kind of surprise.

"I quit Facebook 'til I finished my qualifying exam… When I got back on a few weeks ago I went 'Oh wow look at all these wedding photos people have!' Otherwise I don't look at my wedding photos too often." – Bride, Couple D

This suggests that opportunities for spacing out the revealing of photos, or other forms of mementos, might be of potential benefit. Rather than showing all of the photos of the wedding at once – as with many services – it might be help-

ful to carefully mete out their arrival so as to "make the magic last." Further to this point, the sharing of photos in this way could potentially help to reconstitute the set of people involved in the wedding, thus serving to preserve a sense of community among the guests. All the more so when one considers these remarks about showing wedding pictures at family events:

[On father's 60th birthday] "His dad set up a massive slide show on the computer of all the official photos… they sent all their guests through the house to look at it. No one escaped! Everyone had to go through and admire our wedding." – Bride, Couple G

"I went to my grandmother's funeral...and so my aunts and my cousins there, they didn't come to the wedding. So I got that book so I could show them…so it was good to show to people who couldn't be there." – Groom A, Couple O

Outwardly we might assume that a 60th birthday party or a funeral has little to do with a recent wedding, but in fact, the wedding became a primary topic of conversation at these events. Efforts to make the magic of the wedding last were partially achieved by using technologies to create artifacts to talk about at subsequent social gatherings.

DISCUSSION

Our research has sought to capture the full lived moment of weddings: from the logistical work when it is planned, the celebration itself, and the reliving thereafter. What should be clear is that technology of all kinds is suffused through this experience. It is used to plan, to celebrate, and to recall; it is also used, as Sarvas & Frohlich note [24] to constitute the event - picture taking being as much part of doing a wedding as a technique for reminiscing thereafter.

Doubtless weddings are not unusual events in this regard; much, if not every, aspect of contemporary society is touched by technology. Even the most traditional event, like a wedding, attests to the fact that we are now living in a world of ubiquitous computing. Mark Weiser would be pleased, even if a little startled, at quite how ubiquitous it is. That this is so should not elide recognition of the subtle ways that technology gets used, however, nor equally subtle explorations of how it might be used through better design and development.

The first part of our discussions alluded to some of the aspirations that Mark Weiser outlined when he coined the term ubiquitous computing: that technology should disappear. What we found is not that the technology disappears (though it is taken for granted), but that more importantly it allows some of the work the technology enables to disappear. Various aspects of planning, scheduling and logistics, for example, amongst other paraphernalia of organization, are made easier and less "visible" with the use of spreadsheets, common email addresses and such like. A fuller, more detailed treatment of the organization of work among couples and their extended networks would be a fruitful

area for future study and informative for designing planning systems.

We also saw something in relation to this which points toward the essential concerns of CSCW as outlined by Schmidt and Bannon [25]. The tools that allow invisibility also allow the humans engaged in the work to articulate themselves or, rather, to do *articulation work*. This was most conspicuous with regard to the work which is not merely practical or functional but that which entails delicate political acts: choices that, if messed up, produce emotional costs. Who gets invited is not just a question that the bride and groom can answer, for instance; sometimes the extended families on both sides have a role too. Participation in a wedding, being on the "invitee list," is then not just a matter of affection. Some people have to come to reciprocate prior invitations; others to honor aspects of family that cannot be provided in any other way. There is good reason to fear such mistakes: they can lead to recriminations, complaints, hurts. Choices about these matters articulate the auspices and nature of collaboration in the work of weddings.

This has immediate implications for some state of art technologies and related conceptions of social practice – articulation technologies especially. For if what we found is correct, then attendance at a wedding cannot be predicted to be, or modelled as, a graph-based, social network; the articulation that Schmidt and Bannon say is so fundamental to cooperative enterprises is absent [25]. The issue is not simply that those who get invited might be appalled by the use of a social graph to identify them; we are not alluding to the possibility that invitees might complain that they have been selected by dint of, say, a Facebook model. Indeed, our research suggests they would be right to complain and find that offensive. Of greater moment is that fact that their ire would derive from their knowledge – common sense, everyday knowledge - that the "configuration of participation" at weddings is a complex product of social and political negotiation. It is an emergent property derived from the patterns of power and bargaining skill manifest in those who have rights to select who can and cannot come – not just the bride and groom, but other family members, influential friends and so on. Thus those who find an invitation on their doormat and post boxes (paper invites still being preferred) will know that this is the result not of a model, but of delicate and complex affair; all the more gratified they feel when that invitation comes.

If this is so, then one important implication is that social network models cannot be used to help automate or make invisible this aspect of the work of weddings. Beyond this, it also begs the question of whether such social graph-based models have the utility that is widely claimed if an event that purports to be about robust kinship and friendships structures cannot be so modeled. If not weddings what then what of other looser affiliations? Of course, it may be that the emergent social configuration of weddings is extreme; other social connections might be easier to map and hence

model because they are more stable, more "predictable." But this does suggest that the emergent nature of social relations is an important issue that might be neglected in social graph theory and practice: a contrast might be drawn between the views of society to be found in, say, Duncan Watts [30] and Schmidt and Bannon [25] already mentioned, also Tim Ingold [14]. The former privileges graph models, the latter, practice and its articulation. A system that foregrounds the practice of social configuration – that recognizes social affairs are delicately produced and difficult to pin down in models – might be more useful here. For example, a method of communicating that only allows messages to be delivered to particular people in a particular order (rather than everyone at the same time, as with email or Facebook) could be helpful.

A second important set of issues arise in relation to place. One might imagine that new technologies would reduce the need to participate in, or attend weddings. One might simply Skype in, say. Our research shows that this will only occur in the exception for two main reasons. To begin with, place is used as a determination both of who can attend and who cannot. A ceremony held far away is undertaken there so as to prohibit the need to invite all and sundry, for example (or to allow reasonable declined invitations say); a wedding nearby the reverse. Place is a tool for social selection, then.

In addition to this, place is also crucial to ensuring the right sort of event happens: that the magic sought for is attained while the adroit management of semblances also - not too extravagant with foolish expense, but tasteful, with the right ambience. Here, who attends is just as vital. To paraphrase Dourish, place is where the action is [7]. Though similar realism may motivate those who choose to accept an invitation, not many will accept simply because they think magic will be seen; many more (if not most) accept because they want to enjoy the entertainment, the ceremony, the food, the company. They are at once seeking and helping create something more than this list implies: they help foster *the spectacle*. The spectacle sought for is in some particular place: not anywhere will do. Magic – even the foolish swooning of wedding magic – is situated; its geography and its participants matter. An interesting and startling contrast can be made with Harper's study of the importance of place in the work of the IMF: though that organization seeks to undertake rational decision-making, place turns out to be important in sanctifying its decisions [11]. Here too place is bound to the sacredness sought in weddings. Technology that seeks to dissolve distance and thereby reduce the salience of place misses the point. This does not mean that technologies of communication and "digital presence" might not have a role, but it does mean that they need reimagining if they are to aid in weddings. It is unlikely that they will replace the importance of place, but it is possible they might be able to augment it.

Third, the value of technology in documenting the event cannot be underestimated. But what our research suggests is that the formal creations (e.g., the "Wedding Album") are not always visited or examined as much as one might expect, especially when one considers how much effort is put into their production. Without diminishing the importance of the official records of the day, a great deal of joy and unexpected value comes out of the unplanned and more serendipitous collections and showings of wedding traces. The sudden placing of wedding pictures on someone's Facebook account a year after the event, the sharing of hitherto unseen pictures at a subsequent but unconnected family gathering, attests to the possibility that digital traces might be gathered and made available more widely. The joy that unexpected views produces is also suggestive that these traces might take novel forms – supplements to the staged photos for example; unusual traces – sounds, say, or perhaps social media content that returns and is made strange by its appearance [5]. This points towards the absence of control over the collection of traces at the wedding: if the official album is an artful creation, the product of an imagined world of perfection, then the traces that are captured outside this envelope of editorial control might appeal precisely because they are contrastive, mocking the sought-for perfection through documenting the less-than-perfect, the foolish dress, the infelicitous speech. Just how this might be managed without offence is a difficult question, though it is one that might need to rely on the good grace of those who do the collecting.

Like other major life events, we have seen how the use of technology with respect to weddings creates opportunities and challenges for design. The problematic nature of a formal social graph emerges again throughout these events (c.f., what happens when a user of a social network dies, or seeks support following a loss [19]) – the modeling of human relationships as nodes in a graph seems to fail when life arrangements are changing drastically. We also see the importance of planning raised across life events; whether planning for a wedding, or for a new child [9], or for a residential move [26], software is used to coordinate and track progress but is often imported from the workplace and carries its moral trappings. Finally, technology changes the way we are informed of, and reflect upon, these events. Delivering news and evidence (i.e., photos) of a wedding is increasingly accomplished using social media that can inadvertently upend traditions for notification (i.e., that close family find out first, and then friends, and then looser acquaintances). Similar concerns exist for notifying people about a birth, death, new job, and so on. Major life events are often worth sharing, but the order and audience of this sharing needs to be carefully considered to enable more flexible methods of notification and documentation.

CONCLUSION

We have presented the results of the first study in HCI and CSCW exploring weddings as a domain for inquiry in their own right, revealing a set of rich and varied practices con-

cerning technology's role in their achievement. Our findings illustrate how couples engage in a dialogue with contemporary notions of the "magical wedding day," carefully orchestrating an event that is special and memorable, but at the same time realistic and practical. We have outlined four ways in which the semblance of magic is brought about: by managing the visibility of effort, by carefully configuring who participates and how, by personalizing the event and providing spectacle, and by documenting the day so that its magic can be revisited. These findings point towards considerations for technology design and use, and suggest more nuanced notions of relationships beyond the social graph, the implications of place, and considerations for alternative forms of documentation. Like other life events, weddings surface complex, subtle, and important relationships that people create with technology, and with one another.

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