

# Annotation and Anonymity: Playful Photo-Sharing by Visiting Groups of Teenagers

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## ABSTRACT

This paper investigates the playful photo taking behaviour of teenagers during group visits to two touristic public events (an airshow and a guided tour of a museum). These studies provide the feedback for the iterative development of a smartphone based anonymous image annotation and sharing application. The resulting implications for the design of such photo systems are examined, specifically the appropriateness of opportunistic upload for social media. Playfulness in photography has many implications regarding wider social behaviours. Comic annotations provide the ability to create humorous reinterpretations of photos, and the presence of humour and in-jokes affect the makeup of the audience with whom a group would like to share. It is counter-productive that an application encouraging such limiting behaviours may conflict with the open nature of touristic events. In addition, the shared images have an ephemeral quality and are therefore of transient value (compared to more tangible souvenirs), and their production through the application can ultimately distract from the experience of the visit itself.

## Author Keywords

Playfulness; humour; social groups; photos; sharing.

## ACM Classification Keywords

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

## INTRODUCTION

The ubiquitous nature of camera-phones has seen a move towards photography as a means of expressiveness with an increasingly social value [6,17,19]. Humour and playfulness form a key role in this and are becoming common phenomenon in studies of the use of camera-phones (e.g. [2,8,19,20]). This paper further explores the nature of playfulness in photography with groups of teenagers at two

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ACE '15, November 16 - 19, 2015, Iskandar, Malaysia

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ACM 978-1-4503-3852-3/15/11...\$15.00

DOI: <http://dx.doi.org/10.1145/2832932.2832955>

contrasting types of event, and the implications this has for the design of photo based visiting applications. We provide an analysis of how playfulness manifests itself in the photo taking behaviour of teenagers, highlighting how the development of “group humour” affects photo sharing, and the impact it has on the visiting experience. General design implications for supporting playful social photography in mobile applications for group visiting are discussed.

## Background

The humorous souvenir postcard of a trip to the seaside dates back to the Victorian era, with amusingly painted wooden façades with a place to insert one’s face, popular since the advent of popular photography. Historically photo taking has been associated with such special occasions and the capturing and sharing of important events due in part to the costs of film and development. With the introduction of digital photography and camera-phones, photo taking has become a prominent and integral part of everyday life, and the motivations for taking photos is evolving as technology changes. Camera-phones are now used for a variety of purposes, such as memory capture, communication, identity formation, and expressiveness [19,20,21]. Playfulness forms a part of many of these purposes.

Huizinga [5] describes humans or ‘Homo Ludens’ as being naturally playful and he sees playfulness as one of the main bases of civilization. Playfulness is a social cultivation mechanism [5] and play and friendly teasing or ‘poking fun’ are important features of social relationships [8]. Camera-phones are becoming a key instrument for this, with people having fun whilst taking photos, teasing others about them, and sharing the ‘humorous’ results online instantly [21]. This natural playfulness in everyday photography is also spilling into the capture of special events [2,9,14].

Durrant [2], Patel [9], and Weilenmann [22] have shown there is often a playful nature to event-based photography. For example, when provided with the ability to add comic bubble annotations to photos at an event, users took many candid photos and added witty and risqué captions [2]. Using an iterative design approach to develop a similar application our aim was to investigate how teenagers integrated playful photography with attendance at events. We attempt to explore which features of the application and context prompt playfulness, and the implications this behaviour has on

sharing and photo based souvenir generation. The first deployment was at a free roaming, outdoors airshow with over one hundred thousand visitors present. The experience from this, both technical and from user feedback was fed into the second iteration rolled out at a more structured, 'serious', didactic museum environment.

### FIRST ITERATION

A mobile application was developed to investigate the playful photo taking, group behaviour and attitudes to sharing. The application's use was studied in conjunction with a manual process for creating comic strip style souvenirs using themed templates [2].

### Application Design

The application was designed to allow members of a closed group of visitors to a touristic event to anonymously annotate and share images. The service was based on a shared repository into which images and any associated annotations were automatically pushed (following the methods of previous studies [2]). It was supported by a backend server that hosted and managed the users' shared content. Each participant had a local repository of images that was opportunistically updated and synchronised via 3G connectivity (i.e. when available). The following section gives an overview of the main features of this mobile application.

#### Capture and Annotate

To begin the annotation process a user selects an existing photo from the phone's built in gallery or capture a new one using the camera. A number of speech or thought bubbles (referred to as text-annotations – Figure 1 (left)) can then be selected for text entry. Each text-annotation can be freely moved around to any position on the image allowing a user to create a comic strip like dialog within the photo. An image, with or without annotations created using the application is referred to as a 'panel'. Panels are immediately uploaded to the server when complete and automatically shared with other members of the group.



Figure 1. Annotation Options (left) and Sample Panel (right)

#### Anonymous sharing

On each device, a preview screen displays all the panels from the current repository in chronological order. The displayed images are devoid of identification of authorship, even to the author, making the photographer and the creator of the annotations ambiguous. The user can browse through all the available panels displayed as large individual previews (see Figure 1 (right)).

#### Re-Annotate and Share

A user can select any image from the pool, delete the existing annotations, re-annotate it then share it again. This process creates a new copy of the image, allowing users to extend and re-purpose previous panels with new content.

### The Event: RAF Waddington Airshow 2012

This version of the application was designed for potential deployment at non-specific events, in that no theming was evident within its look and feel. For the purposes of the first study an event with geographic convenience was chosen. This was an airshow, an annual event held near Waddington featuring a schedule of air displays and static attractions such as aircraft and classic cars. In addition to this, a funfair and various food stalls were also present. The airshow itself is held at an airfield and distributed across a wide outdoor space. Visitors at the show were free to move about in this space as they desired, experiencing the various aspects of the airshow as they saw fit.

### Participants

Seven participants aged between 17 and 18 were invited for this first deployment. The field trial ran over two days with three participants on the first day (2 males, 1 female) and four on the second (2 males, 2 females). Both groups were existing friends and each spent approximate 4hrs at the show.

### Data Collection and Analysis

On the day of the study each participant was provided with an iPhone set up with the application (and a pre-created group) and given a brief overview of the features. They were instructed to use the application to take photos that they could then annotate and share with the group before creating comics at the end of the day. The comic templates were shown to them when they were given the phones.

The airshow, being a popular annual international attraction had visitors numbering well above one hundred thousand. 3G reception was very slow, or not available at, all as a result of the sudden population increase. This had direct implications on the participants' experience who were initially unable to take and annotate photos through the application as they were unable to login to the app (although constant connectivity was not required to use the app, it was needed at the start to establish user credentials). However, they adapted their behaviour and instead took photos outside of the application (using the built in camera functionality) before annotating them when 3G reception was available.

Each day two 30-minute filmed ethnographic observations were carried out, one at the start of the day and the other towards the end. During these periods, a researcher joined the participants as they explored the airshow, observing their behaviours and informally asking questions. A filmed focus group was held at the end of each day at a separate location following a semi-structure interview protocol. Here the phones were connected to WiFi and the participants annotated photos they had taken during the day and also selected the photos that would be used to fill in sections of the printed comic template at a later date. At the end of the

day participants were provided with access to digital copies of the individual annotated images, and a week later were provided with physical printed copies of their comics. A survey was given to the participants two weeks after the event to see how they had revisited and shared the photos.

All audio and video recordings were transcribed. Open coding was carried out, looking for emerging themes in the data. The photo content and annotations were also analysed.

### Findings

Overall the application appeared to support and induce many examples of playfulness, from posing for photos in funny ways, orchestrating amusing photos, playful teasing, and the development of running.

### Photo Taking

In general, the groups stated that their normal photo taking behaviour was non-serious, with funny and playful photos being common, and camera-phones being the predominant means of capture. During the airshow, this behaviour was clearly evident, along with many instances of posing and photo orchestration (see Fig 2.).

*P4: ...because we normally take random photos of people pulling funky faces anyway...[the event] didn't really affect how we took the photos.*

It was mentioned that other generations did not understand the nature of their photo taking practices:

*P4: My gran commented that on [P6]'s Facebook, he has absolutely no photographs of himself that are actually serious, normal photos.*

It seems that being at a 'special' event had little impact on the nature of the photo taking, with the enjoyment and fun of photography being a prime motivator rather than capturing the unique features of the airshow.

### Event Engagement

It was observed that the photo taking and annotating process often distracted the participants from engaging with the event itself. In the moments that they were engaged with the context of the event around them it was to look around for a photo opportunity or to capture one. Although many images were taken of attractions at the event, such as the funfair, or cars, these were often taken for the purpose of annotation. When the participants were asked about this in the focus group they stated that they did not pay much attention to the planes, but that they would not have usually anyway.

*IV: How much did you pay attention to the planes and things like that?*

*P2: I didn't.*

*P3: We wouldn't have done that anyway.*

It appears that much of the attention of the participants was in creating humorous photos with witty annotations that facilitated group cohesion and bonding, rather than on capturing the nature of the event, or special moments.



**Figure 2. Example Photos: Orchestration (left) Recontextualisation through Annotation (right)**

### Photo Annotation

Whilst the nature of the photos taken did not deviate from the participants' normal photo taking involving fun and playful orchestrations, the photo annotation feature was seen as a way of 'making photos funnier'.

*P2: If we took a picture you'd think about what you could write with it, like, and try and make the picture funnier, so try and make the annotation funny.*

Occasionally the annotations replicated what was said at the time the photo was taken, but in general they were added later, and were a humorous reflection or reinterpretation of the photo. The ability to apply personal interpretations to the photo annotation also seemed to add a further level of amusement to the process.

*P7: it's funny because you can interpret it any way that you like...Like the 'mershed perderders'. Everyone says that differently.*

### In-Jokes and Humour

Both groups appeared to create their own in-jokes on the day, often building on existing shared references across the group. This became especially prominent in the photo annotations. For example many of the annotations imitated the 'image macros' that are often seen on the Internet as 'memes'. This focus on 'internet humour' was a common factor across both days.

*P6: Yeah Internet jokes...*

*P4: Yeah we kind of go on the Internet quite.... a lot. P7: And share these jokes at school like.*

The second group used a number of memes in annotations (such as 'ermahgerd' and 'mershed pederders'), often making their own 'mash-ups' of these (see Figure 3).

Whilst also using memes, the first group developed a theme of posing, firstly copying existing poses (e.g. planking and what they referred to as 'tea potting'), and then making up their own ('the hippo').



**Figure 3. Original Meme (Reddit) and Application Mash-up**

### Anonymity and Teasing

The anonymity of the photographer, and more importantly, the author of the annotations seemed to add a great deal of playfulness, leading to pantomime like teasing at times.

*P7: [laughing] was that you [P6]?*

*P6: That was [P4].*

*P4: That was [P6]! [hits P6 on the head]*

When we probed them further about the jokes and humour that the anonymity induced the groups felt that this would only be appropriate within a clearly defined group.

*P6: When it was just us four, and we knew it was only us four getting them, we were always like...it wouldn't really matter that much. But if you were sending it to all your friends' phones, it would make a big difference.*

It therefore appears that the provision of this anonymity is only appropriate when the group is 'bounded' (essentially with members known to each other). This bounding could be through smaller numbers of group members, or through the group being co-located. The danger in more public groups is that a fuller sense of anonymity could lead to unchecked widespread ridicule (cyber-bullying through disinhibition).

### Threats to Share Online

There was much teasing around threats to share photos on Facebook, with others playfully protesting against this (at the end of the day all the photos were added to Facebook at the groups' agreement).

*P5: Oiiii! No don't! Don't, don't, don't put that on Facebook [tries to grab phone from P7].*

*P6: Oh that one's so going on Facebook!*

It is unlikely that this teasing would have been as prominent if the group did not have access to a shared repository of the photos to refer to. Moreover, the digital nature of photos and the connectivity of phones meant that the potential for sharing online was greater and thus a more direct 'threat'. Despite teasing to the contrary, the groups generally showed enthusiasm for sharing photos online with friends.

One group asked the person with 'the most Facebook friends' to upload all their images, maximizing the audience.

*P5: I would want to put these on Facebook cos other people might find them funny.*

### Sharing with Others

It was suggested by the researchers that the groups may also want to share their photos with other event attendees (i.e. on event based Facebook pages). There was a very clear reluctance towards this. Whilst it may be assumed that this was privacy or security related (e.g. [17]), this was not mentioned. Instead their hesitance was almost entirely linked to worries about their in-jokes and humour being out of context and inappropriate for other visitors.

*P5: ...our jokes are weird.*

*P7: They're sort of yeah...jokes amongst us.*

*P4: It depends who was at the airshow. If it was people, our age who understand the jokes, then it would be fine, but...*

*P6: Yes, I think the annotations would change quite a bit because these are like, personal jokes that we understand...*

It appears that the group would not feel comfortable sharing their humour with these 'outsiders', despite wanting to share the photos with a wide audience of friends and peers.

### Bystanders

In the context of this study we define bystanders to be "anyone not a member of the participant's group". Despite a reluctance to share photos with other attendees, the presence of bystanders was still an important part of the playfulness. These 'observers' had no direct interaction with the photo taking or annotation process, and their presence did not appear to inhibit playfulness. There were signs of embarrassment at being 'playful' in their presence (although this seemed to have a fun element).

*P1: It was just...I found it hilarious. I was quite embarrassed actually, because people were just like, why have you got your head in a bin?*

During the photo annotation process these 'unwitting bystanders' [1] became an even more prominent feature of the play, as the group often chose to attribute speech and thoughts to them. In this instance this inclusion was not unpleasant, but shows how bystanders, despite not being within the boundaries of the sharing and playfulness, still feature in it, and again, concerns regarding the potential for cyber-bullying and disinhibition are important here too.

### Friendly Bystanders

During the event, both groups bumped into friends and acquaintances who were taking part in the airshow. One particular friend was photographed repeatedly, and humorous captions added.

One of the participants later uploaded a photo to Facebook, and this friend firstly 'liked' the photo and then continued to create further captions himself through the commenting

feature. This interaction was interesting, as the fact that he was pictured and then able to see the photos seemed to encourage him to become part of the annotation process and thus become a ‘player’ himself to some extent. The shared experience of being at the event probably also impacted on this. With others that did not share the experience of attending there was notably less activity.

### Digital vs. Physical

On both days the participants were asked about the value of digital or physical photos. The consensus appeared to be that physical images were ‘sentimental’ and ‘old’, whereas they preferred being able to share digital content:

*P6: yes, you can share a digital one with more people.*

*P7: I think physical photos are more, like, sentimental pictures.*

*P5: Yes, like family and old friends, like, from ages ago and ages and ages ago... Plus, digital, can all be shared with people who have the internet.*

*P6: On Facebook and stuff.*

In the survey four participants said they were unlikely or very unlikely to view the images again in six months’ time. They also valued the individual panels over the comics as they were ‘easier to share’ (the comics in this version being physical print-outs). This value of the digital over physical has direct implications for the design of the app, as does the preference for individual panels.

### SECOND ITERATION

As a result of the first deployment and its findings a number of changes were made to the design of the application. For example, during this first deployment, it was observed that participants, on noticing the sporadic 3G connectivity, would switch to a regular photo-taking mode (using the in built camera application) with the aim of annotating and sharing the panels when a connection was available. Subsequently in the second deployment an opportunistic uploading mechanism was implemented to manage this process within the application and to reduce frustrations related to connectivity.

In addition to this, due to the interactions with ‘friendly bystanders’, dynamic group creation and membership was investigated to probe the impact of flexible group boundaries. It was also decided that mechanisms should be developed for creating ‘digital’ comics, and also to easily share both the panels and the comics online.

Finally, due to the participants’ low interest in the on-going event, though this may be particular to the invited group, we sought to investigate this further and as such seeded our participants in this deployment with information about the event and one of its characters.

### Application Design

This section explains in more detail, the changes that were made to the application in response to the previous studies.

### No central control or administrator

The application takes an ‘anarchic’ approach to group management, with there being no central administrator to allow or deny access to groups. A user cannot be kicked out of a group or enforce any form of control over content shared. Any member of the group has the provision to invite others into the group. A user can switch to another group at will or leave any group they are already affiliated with. The rationale behind this process was to study the natural group dynamics in a bounded study before implementing a rule structure in the application.

### Export to photo gallery

Panels created in the application can be exported to the user’s photo gallery on the device and can then be imported into and accessed by other applications (such as Facebook). This was included in response to the desire to easily share individual panels online.

### Opportunistic uploading

Based on experience from the first study an opportunistic uploading feature was implemented to take advantage of available connectivity via a “store and push” mechanism. This was implemented in such a way as to relieve the participants from having to consciously re-share panels when they were unable to upload due to lack of connectivity. This mechanism ensured the application was always synchronised to the best of its ability given the available bandwidth and without user intervention.

### Comics

The comics feature allows users to select up to six panels to form a digital comic. They can then arrange the ordering of these on a template to create a comic style narrative. Selection of panels was not restricted, being left open to the user to choose and order them in any way that was desired. These comics are then shared with other members in the group. A basic comic has a title and features the first panel in the series as its cover photo. This was a digital solution to replicate the physical version as carried out in the first deployment. Users could also ‘generate’ a full comic preview for printing or sharing.



Figure 4. The actions a user could perform with a group (left). QR-code: scanned by a user to join a group (right)

### The Event: Tour at Nottingham's Galleries of Justice

The event for the field trial in the second deployment was a tour at Nottingham's Galleries of Justice museum. This museum features collections that illustrate historical tales of crime and punishment and reform over time. Generally three costume actors use performance to tell stories of historical incidences at different points through the museum journey.

A regular tour begins with a short introduction about the museum and justice system as it was in Victorian times. Often this focuses on an old gibbet hanging from the ceiling, a structure used to hang dead criminals for public display. Visitors proceed from here to a restored Victorian courtroom where a collaborative performance between the actor and some of the visitors re-enact portions of a real historical inmate named Valentine Marshall.

After the courtroom scenario visitors are led underground into cave-like cells chiseled into the earth, through a women-only prison, and out into the original 'exercise yard' where hangings used to take place. This yard is particularly interesting as visitors can see the wall where Valentine Marshall (and other prisoners) carved their names. This stage marks the end of the 'actor led' tour, and visitors lead themselves through the latter more traditional sections of the museum. These detail stories of transportation to Australia (where a photo of Valentine Marshall in old age can be seen), and more recent reform in prison systems. It should be noted that due to a fair portion of the tour taking part in the old prison cells beneath the building, there were a number of spaces where 3G reception was not available.

### Participants

In the second study 10 students were invited and split into two groups of five with 2 males and 3 females in the first group (aged between 15 and 16), and 4 males and 1 female in the second (aged between 17 and 18). Each of the groups consisted of existing friends. None of them had prior experience with the museum.

### Process and Data Collection

During this study, we wished to investigate methods for engaging the participants more closely with the museum content, particularly stories of former convicts. Subsequently a short biography of Valentine Marshall was circulated among the participants so they could become familiar with the character while we were en-route to the museum. On arrival at the museum participants in the first group were each given an iPhone with the application installed and given a brief overview of the application highlighting its key features. One researcher was assigned to shadow each group to observe and to surreptitiously act as the ghost of Valentine Marshall (secretly sharing previously created canned photos of Valentine Marshall to the group, see Figure 5). These photos were sepia toned (to subtly distinguish them from the ones the participants would be capturing) and annotated with bits of content from the earlier circulated biography.

To allow the participants to experience the tour as closely as possible to how they would normally expect to (i.e. with other strangers in the tour group) we were faced with an ethical restriction with regards to filming in a non-public setting that would require consent from everyone present on the tour. Instead a researcher followed the groups and made written notes on participant activities. Focus groups were carried out immediately after each group's tour ended and these were audio recorded. Participants also created comics using the application during this time.

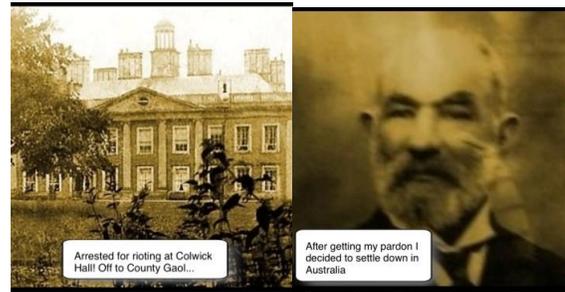


Figure 5. Sample Images of 'Valentine Marshall'.

### Findings

Though the second location was more didactic than the first and the experience much more guided and structured, a number of emergent themes, as described below echo those from the previous deployment. Also of interest is the participants' response to the newer features of the application, namely the absence of a central administrator and the external locus of control of the upload process.

### Photo Taking

As with the first study this group also indicated their regular photo taking activities were fun and non-serious. For example, when asked what percentage of their photos they would classify as 'funny', respondents replied: "All of them. About 90%"

Though the first group did not engage in culturally referenced posing, they did indicate it was an opportunity missed when asked about it:

*P3: No, I kind of wish I did now, though!*

*P1: We just took the mick out of objects that we saw and people on the tour.*

The second group on the other hand talked about 'skanking' in their photos.

*P4: What did you put, skanking?*

*P5: That's it, yes.*

*IV: What's that?*

*P5: It's a type of dance.*

So whilst there were fewer examples of the use of cultural references than the previous study, this still played a part.

### Photo Annotation

At this event photo annotations presented an opportunity to provide interpretations of the context of the event, and nearly all of the resulting panels were humorous (see Figure 6).

*P3: Yes [we took photos] and captioned them with funny little things.*

*P4: You just took pictures of things that you thoughts were funny, and tried to think of a comment to go with it, then it's amusing for everyone.*

It appears that the participants actively sought out photo opportunities for which they could write something witty in much the same way the participants in the first study did.



**Figure 6. “Humorous” reinterpretation of exhibits.**

### Sharing

Once again humour appeared to have an impact on sharing behaviours, with some participants implying that they wouldn't want to share the images with certain people. Age was cited as a barrier to this.

*P1: You wouldn't want to send it to your mum or something..I think it's just more appropriate for our age range*

One group talked about showing the images to a friend after the event who found them funny. Although the humour in the annotations made them even funnier to the group who shared the experience of attending.

*P6: When we came back, we showed [a friend] some of ours, and she was laughing. I think they were pretty funny in general.*

*P7: But, probably funnier to us.*

*P8: The actual pictures would be funny to anyone, but like, what you put, the captions, yes.*

### The Application as a Filler and Re-engagement

Participants indicated that the application was sometimes a welcome distraction from the museum collections with those who had disengaged taking the opportunity to browse through available photos.

*P1: Overall, though, I thought it made the whole experience a lot more interesting because it gives you something to do while you're looking round, because sometimes museums can be, not boring, but they can get a little bit...*

*P2: Boring!*

The application provided a way to catch up on panels created by other participants in the group, at times prompting viewers to re-engage in the event (i.e. deciding to check out the exhibit shown in the photo). In addition to this the participants re-engaged with their surrounding when looking for their own photo opportunities.

*P1: It just keeps me a bit more focussed because I'm looking out for things that I can take a photo of and put captions on.*

It could be suggested that this level of engagement is slightly superficial as the participants were still thinking about the potential to create photos.

Attempts at engaging the participants using the photos and biography of Valentine Marshall were disregarded.

*P5: I think I remember seeing one. I'm going to be completely honest, I don't really look through them all the time, I scrolled through them.*

*P2: Because none of us knew who was sending the photos in the group anyway, so we just thought it was someone else in the group. We didn't know it was anything to do with...*

The participants missing these photos from Valentine Marshall may be partly due to the increasing number of photos they were taking and might have been easily lost as was noted by the participant during the focus group.

### Disinhibition and Candid Camera

The literature has shown that anonymity in computer mediated group communication stimulates disinhibited behaviour [11,18]. Through discussions with the participants it was possible to see that anonymity did play a role in what was authored in the panels, again linking with the first study.

*P2 Probably more harsh jokes.*

*P1: Because you're less likely to get into trouble for them.*

*P3: Yes, because they won't know it's me.*

As discussed before, this can have negative connotations that may not always be appropriate in wider groups.

*IV: Did any of you use that, the fact that you were posting anonymously, purposefully?*

*P7: Yes, they were being quite nasty to me.*

A theme not apparent from the first iteration that emerged during the second studies was the efforts that participants made in snapping candid photos of their friends and tour guides. This, combined with the annotations and author anonymity, resulted in humorous incidences.

*P3: I tried to do it sneakily but the flash went off, so I was like... The flash blinded them.*

*P5: Busted!*

The candid camera behaviours, combined with the disinhibition, may have facilitated the application being used as a mild form of peer victimisation [3]. This victimisation may extend beyond the bounded peer group when bystanders are implicated in this.

### **Bystanders**

It seemed that the presence of the tour actors and other visitors impacted on their photo taking, again linking to the role of bystanders in the photo experience. However at this event it appeared to be more of a barrier than in the previous study, where participants were simply mildly embarrassed at times. Instead the participants were worried that they may appear ignorant when using the application.

*P6: Just being stood there, on your phone, it makes you seem a bit ignorant.*

*P8: An educational trip and you're just stood there on your phone*

Though this may not be the case for every group or event, it was observed that the participants mediated their photo taking to when there was less potential to cause offence.

### **Connectivity and Timeliness**

This study also allowed us to explore the connectivity aspects of the application. Participants were generally divided, with regards to the caching and uploading of the panels in an environment with interrupted connectivity. Participants had varied opinions on the amount of control the user should have in such a situation with some suggesting full control for the user by manually restarting any upload process when it fails. Others indicated that an approach where the application has full control and automatically retries till it succeeds might be preferred. The general consensus though was to mix the two by first retrying automatically then delegating to the user after a number of attempts.

They indicated that the choice of whether to resend a photo after a failed upload would be highly context dependent, for example a joke may go stale and lose its relevance after its context had elapsed, similar to delivering a late punch line, or the appeal in the original photo may be lost and another desired to be sent instead.

*P8 You might change your mind that you don't want to actually send that.*

The situational context may have changed during the delay. Similar findings were seen by Patel et.al. [10].

### **Comic Souvenirs**

When asked about the value of the photos in the future participants talked about not really viewing them after the event (which is similar to what we found in the first study).

*P7: I don't tend to look through them when I get home, unless it's been like on holiday or something, and then you've got loads, and then you look through all of them, but they tend to be slightly spur of the moment.*

In addition to this one participant mentioned not valuing physical photos, instead keeping them in digital form.

*P5: But then again I don't really find any value for physical photos, it's just on my phone or Facebook.*

The participants were asked to make comics during the day but appeared to be more concerned with the individual panels on this particular occasion, although they discussed the potential for making a comic for different occasions.

*P4: Yes, I like the panel, just being able to flick through all the photos.*

*P5: I wouldn't say I was interested in making a comic of it, no.*

*P6: Overall [I prefer] the individual panels, but I think as a piece of memorabilia, you would want a comic, if you set out to do it.*

### **Group Membership Control**

Participants welcomed the process of being able to dynamically add members to the group. They also discussed the possibility of inviting friends from different locations, linking to the desire to share photos with people who were not also at the event. Scanning their phone to join a group was fun for the participants, akin to entering an inner circle of friends. This inner circle was highlighted when the participants discussed the potential to have a central group administrator in place to manage this circle (who could possibly delegate).

*P1: I think the person who starts the group should be able to moderate it and kick people out.*

*P2: It depends how comfortable you are with the other person who's been invited in the group, if you didn't want to them to see your photos.*

*P3: You'd have to really hate them, wouldn't you, if you wouldn't want to see them in the group! That could be a recipe for lots of awkward situations, couldn't it.*

It is interesting to note that though democratisation was a desirable quality in the use of the application the need for a central control was much greater and might be interpreted as a way of maintaining group cohesion.

*P2 I created it, and then [P3] invited them.*

*P3 Like a minion.*

## **DISCUSSION**

### **Designing for Playfulness**

As discussed earlier, Homo Ludens is innately playful. Evidence for this was seen in the behaviour of both sets of participants: posing, orchestrating photos, creating in-jokes, teasing, and generally having fun. Playfulness in photo taking is seen to be the 'normal' behaviour of the participants, and features within the application encourage this. This included the ability to annotate, and thus creatively or humorously alter the interpretation of photos.

Additionally, the anonymity of annotations, and the potential to reshare the digital images, led to a large amount of playful teasing, however this occasionally veered towards peer bullying and victimisation (see Disinhibition and Candid Camera).

It is important to note the importance of a bounded group when using these anonymous features. This playfulness often focussed on and developed a shared sense of humour across the group. Humour is often used in establishing a group identity or to strengthen ties amongst peers [15] and this could explain the desire to want to share within friends in the group and online. Humour and what is considered amusing is affected by cultural values [4] with many examples of humour requiring shared knowledge for it to make sense. By referencing memes and well-known ‘poses’ the groups are using what Sawyer [16] refers to as ‘ready-mades’ (pre-composed motifs and clichés). These culturally-based shared conventions aid the communication of the humour with the audience, their peers, but also explain why they feel that those who do not share their culture would not ‘get it’.

### **Boundaries**

This study has shown how the group’s boundaries were more affected by shared humour and cultural background than the shared collocated experience of an event. Boundaries are a prominent feature of play. As Salen and Zimmerman highlight [13], play takes part within a bounded ‘Magic Circle’ (a phrase inspired by Huizinga). Within formal play this may be a physical space such as a pitch, but in more informal situations such as that seen at the events, these may not be as clearly defined or linked to a physical space. Bystanders are a feature of the play, but not players; online friends with a shared cultural background are part of the audience; and other friends at the event may become players themselves if also able to see and interact with the photos.

### **Social Implications of Play**

Overall, mechanisms for quick and easy sharing between the players are key to supporting face-to-face teasing and the development of group humour. In addition to this, considerations should be made for sharing images beyond the group to others who will get the joke (the audience). There should also be mechanisms to include encountered friendly bystanders in the play to some degree, and our application attempts to do this with the presence of dynamic group management (although its use was not fully explored in this iteration).

The presence of bystanders may impact on the way people use the application. For example, they unwittingly become implicated in the humour, or their presence may deter certain aspects of behaviour. This may be particularly true at more ‘serious’ events such as museum experiences where use of the application may appear to be disrespectful.

The potential for bullying should be a careful consideration for any designer, and further research in this area is needed. For example in sensitive situations it may not be appropriate

to use anonymity (such as with the vulnerable user groups), as this may promote bullying, though this must be balanced with the desire to afford freedom of expression and still make the experience enjoyable.

### **Transient Humour**

The humour seen in the photos also may have implications for the vision of images as souvenirs. Though our studies did not gather direct evidence of this, it is our feeling that humour is often situational and timely. Similar behaviour was seen by Patel et al [9] where humour became inappropriate within minutes of the context changing. In-jokes developed on the day have the potential to fade once the situation has changed and time has passed. The memes often seen in the first study also tend to ‘fall out of fashion’. This may explain why participants placed less value on physical printouts of the comic souvenirs, and were keen to share them online with friends straight after or during the event.

When photo taking and annotation behaviour becomes playful and humour based, the notion of photo as souvenir may not be appropriate, instead the application becomes a tool for having fun and sharing images ‘in-the-moment’. This is reflected in technologies such as ‘Snapchat’ where images and annotations are deliberately designed to persist for short periods of time.

### **Implications for Visiting**

Although we should be careful not to make overly broad claims from this study, we did find that the use of this collaborative social camera application had the potential to distract the participants from fully engaging with the event. This may be linked to our group constitution, its demographic range, or the participants’ general (dis)interest in the theme, but it does offer some insight as to what might be expected in similar contexts. Whilst the application provided entertainment, it may not always be appropriate to use such a distracting medium. Efforts to increase interest in the location’s theme through the incorporation of related material in an app might in fact be counter-productive (or meet with little success as per the second deployment). Hence it is clearly not always appropriate to use such apps, however, further research could explore ways to better balance playfulness and engagement with the physical context and investigate any long term effects on memories relating to the event that might be effected by its use.

### **CONCLUSION**

Our findings support the idea of humans as being innately playful, with networked technology enabling a naturally mischievous use of photography. It has also demonstrated design features that can further encourage this (instant sharing and anonymity). Additionally our findings suggest that sharing of playful images involves at least two contextual dimensions: those who would get the jokes, and those who were present at the event. To promote considered playfulness, future designs will need to consider how to map sharing behaviours across these.

Taken to extremes however, the development of social photo applications has created an opportunity for the enhanced othering of non-group or tertiary group members. Our studies have shown mild evidence of this (with no negative outcomes) but it will not always be desirable to promote this behaviour (e.g. in a school). Designers therefore need to consider the potential for the amplification of othering that can occur through the use of socially connected applications (e.g. Sneaky, Whisper, Yik Yak...).

Our studies took inspiration from previous work on photo-based souvenir generation. We have identified that this aspect was not valued by our own participants. The timeliness of humour may provide a fundamental difference in use-case here along with the generally ephemeral manner in which our own participants use photography (and further confounded by the distracting nature of the app itself).

Finally, timeliness and order are both key concerns when social communication is attempted but these can pose conflicting requirements. An optimum upload strategy based on bandwidth may well not be the optimum strategy regarding the maintenance of a coherent conversation. For example, individuals in a group opportunistically synchronising material may well find themselves receiving a punchline before the joke.

#### ACKNOWLEDGMENTS

The authors gratefully thank all participants, the reviewers, and the financial support received from the RCUK Horizon Digital Economy Research Hub Grant EP/G065802/1.

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