The #selfiestation: Design and Use of a Kiosk for Taking Selfies in the Enterprise

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Abstract. This paper describes the design and use of the #selfiestation, a kiosk for taking selfies. Deployed in an office of a large enterprise, its use was studied through analysis of 821 photos taken by 336 users over 24 weeks and interviews with 10 users. The findings show high adoption amongst residents (81.5 %); describe selfie usage patterns (funatics, communicators, check-ins, doppelgangers, and groupies); illustrate social photo-taking behavior (78.6 % of users posed as part of groups, and those who did took almost four times as many photos); and raises questions for future investigations into flexibility in self-representation over time. Office residents seeing social and community-building value in selfies suggests that they have a place in the enterprise.

Keywords: Selfies · Faces · Social media · Enterprise · Self-representation

1 Introduction

Selfies, or photographs taken of oneself, have invaded popular culture. But the desire to capture photographs of oneself is not new. For example, an early account of using a photobooth at a conference was published in 1989 [8]. However, traditional photobooths didn't benefit from the design patterns commonly found on social media sites today. Social media sites, from MySpace to Twitter, have made it fast and easy to create an online identity, post content over time, offer network mechanisms among users, and distribute content using these networks. Analysis of Instagram identified self-portraits and portraits with friends among the most popular of eight categories of photos [5]. The abundance of such photos and use of the term "selfie" offers researchers a new opportunity to easily find and create a corpus for studying photographs of humans. Prior research in this area has found that Instagram photos with human faces are 38 % more likely to receive likes and 32 % more likely to receive comments, regardless of age and gender [1]. Other researchers have analyzed images

of groups of people as they are captured in many social settings (overview in [4]). Yet, to date, there has been very few studies analyzing selfies, with current research focusing on interfaces for taking selfies, such as tools to help pose for better selfies [11] and interactions to trigger the photos [6]. Exceptions to this include recent work on the Moment Machine, a public kiosk for taking photos, that's usage was studied over 12 weeks [7] and analysis by those at Selfiecity, who studied 3,200 Instagram selfies from 5 cities around the world [9]. The current popularity of the "selfie" phenomenon, complex issues around presentation of self and perception by others, and their applicability to broader research, warrants further study of this kind of photo.

Early in 2014 we built the #selfiestation, a kiosk for users to take photos of themselves, and deployed it in an IBM office. As the kiosk displays photos taken over time in the physical space, which has a predefined "network" of residents and visitors, its setup is comparable to social media sites in many ways. IBM also has a history of adopting social media tools, such as blogs (2002), social bookmarking (2004), and social networking (2007) [3] and we were motivated to understand how employees would engage with this new form of social media. What began as an exploration into keeping a visual history of visitors and residents, evolved into a long-term observational study of the creation and use of selfies and a first account on the use of selfies in the workplace. This study draws on usage data (821 photos of 336 users over 24 weeks) and 10 user interviews. Our analysis addresses the overall adoption in the workplace, motivations for its use and implications for the work environment, as well as patterns evolving in its use. This joins a body of prior research on social media tools in the workplace, such as enterprise social networking [3], which have shown employees use these tools for search, sharing, discovery of information, and connecting with colleagues. Research has also identified photo sharing as a stimulus for conversations and collaboration, which might also provide the base for the maintenance of social presence among group members [10].
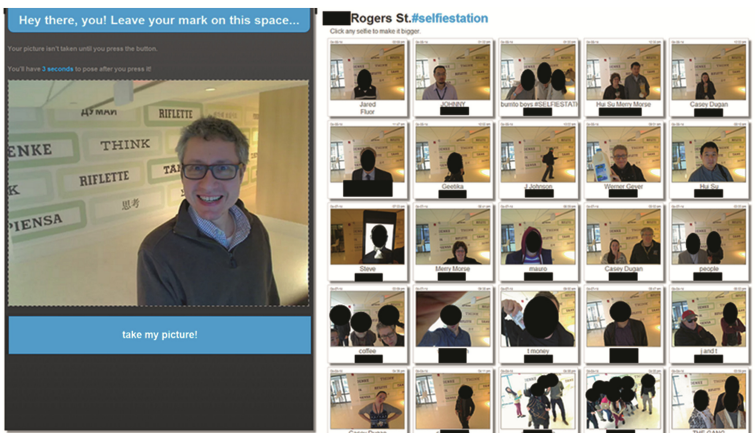

Fig. 1. The #selfiestation application

2   System

The #selfiestation (Fig. 1) is a full-screen application running on a "55" touchscreen, with a webcam attached to the top of the screen. The screen is divided such that the left side is a live feed "preview" of the webcam, that is not captured or analyzed unless the user presses a large "take my picture" button at the bottom of this section. A notice at the bottom of the screen informs users that by saving an image they acknowledge it can be used for research purposes. The right side of the screen displays photos taken at the kiosk, ordered by recency (most recent at the top).

After pressing the "take my picture" button, a 3-s countdown appears, after which the live preview is frozen and a popup is presented to indicate the name and affiliation for each person in the photo, and a caption. To aid users in filling in these optional fields, the system runs face recognition on the photo and presents recommendations for past visitors the system believes may be present. Additionally, both the name and affiliation fields have auto-complete functionality, which show the time of last visit and potentially a thumbnail of the person to help with disambiguation.

After saving this information, users are shown the photo taken and a "Recognition Section" to welcome new visitors or acknowledge repeat visitors. This has a conditional UI with over 20 possible combinations, based on the number of people listed, whether a repeat visitor is present and how long it has been since the last visit, the affiliations of those in the photo, etc. A repeat visitor is shown their prior selfies and told they were missed if it has been more than 24 h or "you were just here!" if they visited minutes ago, while a new visitor might be shown photos of others with that affiliation. A group is told that the #selfiestation loves group-selfies and how many people they need to hold a record for most people in a photo. If no people are listed, users are told "I love pictures of walls! Maybe next time you'll list someone!"

3   Results

The #selfiestation was deployed in an IBM office located in Cambridge, MA, U.S. on March 21st, 2014. The space has 85 residents, from 3 divisions: Research, Consulting, and those who run a briefing center (Innovation Center), with the latter two groups moving in 5 months before. The space requires badge-entry, limiting access of non-residents (other IBM employees & external guests). We analyzed 24 weeks of usage (launch – September 11th, 2014). Photos of researchers were removed, though group photos with non-team members were included. In May, interviews were conducted with 10 users, all IBMers, with a range of ages (20 s–60 +), time with IBM (1yr–20 +), usage (1 photo–20+), males (6)/females (4), and residents (8)/non-residents (2).

3.1   #selfiestation: Photos

During the 24-week study period, 821 photos were taken. Sustained usage is seen throughout this time (Fig. 2), though an initial "novelty" effect seems to occur when it was first deployed and when face recognition was introduced (peaks in weeks 2/5).

The kiosk was unavailable (for unrelated reasons) from May 6th–May 29th (no photos weeks 7/8, dip in weeks 6/9). Coincidentally, interviews were conducted during this time and its absence was commented on in 6 of the 10–3 commented on it being down (e.g. "And actually, today… it's not set up in #selfiestation mode as I've seen it on other days.") and 2 mentioned it prevented their use (e.g. "I enjoy looking at their selfies, so I was going to go there. Then I remembered [it is down]."). One user went as far as: "I don't know about other people you've talked to, but I definitely miss it."
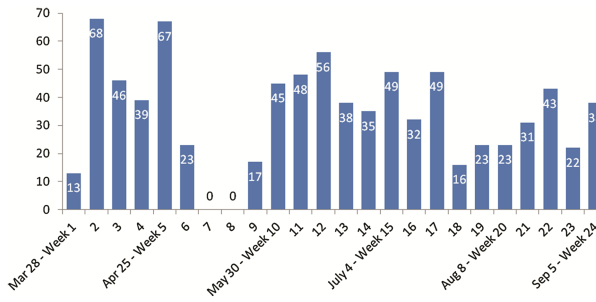

Fig. 2. Selfies taken over the 24-week study period.

As expected in an office environment, very few photos were taken on weekends (10 total). A one-way between subjects ANOVA showed a significant effect ($p < .05$) between the day of the week and the number of selfies taken ($F(16,161) = 13.61$, $p = 0.00$). Post hoc comparisons using the Tukey HSD test indicate the number of selfies taken on either Friday (M = 9.75, SD = 7.86) or Thursday (M = 7.17, SD = 5.61) was significantly higher than the number of selfies taken on any other day of the week (Monday M = 4.41, SD = 3.95; Tuesday M = 5.29, SD = 3.95; Wednesday M = 5.29, SD = 5.13; Saturday M = .29, SD = .11; Sunday M = .08, SD = 0.57).

3.2 #selfiestation: Individuals and Groups

Researchers identified 336 unique people who posed at the #selfiestation. The number of photos taken by users follows a long-tail distribution commonly seen for user contributions. Users took 3.88 photos on average, with the majority (57.7 %) taking one photo, and a few outliers taking a large number (81, 67, 64, etc.).

Of the 821 photos taken, the majority (60.9 %) contained exactly 1 identifiable human face (500). 33.0 % (271) were group photos containing 2+ people (3.29 people on average, max 24). 6.1 % of the photos (50) contained 0 identifiable faces. These included photos of food, the wall in front of the kiosk, and the kiosk itself.

The physical location of the kiosk allowed us to measure participation among residents. Of the 81 residents (85 minus 4 researchers), 66 took one or more photos, a participation rate of 81.5 %. Separating residents by IBM division, shows participation rates are high across divisions: Consulting (25 of 30 residents, 83.3 %), Research (21 of 22, 95.5 %), Innovation Center (14 of 21, 66.7 %), other divisions (6 of 8, 75.0 %). Residents make up 19.6 % of total users. While we are unable to gauge participation for

the 270 visitors, an independent-samples t-test shows residents take significantly more photos (M = 12.77, SD = 16.89) than visitors (M = 1.71, SD = 1.53); t(65) = 5.313, p = 0.00. This is expected, as residents have more opportunities to use the kiosk. The 270 visitors included other IBMers (78), guests from external affiliations (89 with 26 different affiliations), family members of residents (discussed in Usage Pattern section), and those who might be overlooked in an office space, such as the person who cleans the office at night. One user said:"there's an adorable picture of the guys that were putting up the wallpaper…They were not even employees. They were contractors who engaged with the system because they probably saw other people engaging with it." Interestingly, neither the contractors nor cleaner left their names.

We analyzed the use of the name field to further understand how people represented their identity. A large number did not leave their name on one or more occasion, which could point to UI flaws or users being too lazy to fill it in (we noted each person was rarely listed in photos with a large number of people). However, issues of anonymity is apparent in at least one case, where a resident took 19 photos over many months and never left his name. In cases where he posed with a group, a group moniker was sometimes used rather than labeling individuals in it. Group identities, consisting of a name being used to represent an (often) consistent group of people over time, seemed to form. One example was "burrito boys" consisting of 2 boys and 1 girl who used this name in photos when they had burritos for lunch, not in other photos together (for which they sometimes used other group identities). There were also cases of individuals using different names over time, such as one who used "Johnny" in most photos, but also "John" and "John [Anonymized] Jingleheimer Schmidt" and another who first used "KATE" then switched to "katee" (her last initial was E).

We also coded faces by gender. More men than women visited the #selfiestation: 54.1 % vs 45.8 %. However, this imbalance could be due to more men walking through the space. To better compare, we looked at average number taken by men (M = 4.38, SD = 5.16) versus women (M = 3.29, SD = 10.90), but this difference was not statistically significant (independent-samples t-test; t(267) = 1.12, p = 0.230).

3.3   #selfiestation: Motivations and Usage Patterns

To explain the high participation amongst residents, we turned to motivations given in interviews. The most common reason for using the kiosk (all 10 interviews) was to have fun: "fun just to take a picture of yourself." Some also received social acknowledgement: "I've seen other people walk by other people and say 'hey, I liked your cool selfie in the station,'" with another saying "it made me feel good" when others found his photo "hilarious." We identified happiness and increased job satisfaction: "it makes me happy," "everyone else is having fun with it. And it felt good to get to know colleagues that way." Community building was cited: "bringing work and people, something that's more personal, together" and "it would prompt me to approach them more…It captures them in a good moment and they seem very approachable."

Increased awareness of others was mentioned: "More aware definitely…I'll see some selfies of people and I'll be like 'Hmm, I think I've seen that person, but I've never spoken to them.'" As described, various groups were brought together and

learning the names of others was mentioned: "I've seen people's names that I didn't know before," "There are a bunch of people on our floor who I don't know… It is a good way to learn who other people on the floor are." Nearly all said the kiosk was impossible to miss – because of the location in the space ("I think the fact that it is physically there that I'm always reminded of it," "It's easy for me to just glance over and take a peek") or the photos displayed ("The right side has pictures of people that have done it already. So it's kind of like a mosaic of people. That's what I found intriguing"). Another said the live camera feed drew his attention. Every resident interviewed said they looked at least once a day, some multiple times daily. There was a belief it would continue. One user said, due to Innovation Center traffic, "The population coming in and out will be changing a lot…there will always be a reason to consult the #selfiestation, to see who has been around and who is taking selfies."

Based on described motivations & observed behavior, we identified different usage patterns: Funatics, Check-ins, Communicators, Dopplegangers, and Groupies.

The **Funatics** pattern describes taking intentionally funny, playful, or creative selfies hoping to engage others, such as through memes. One meme involved different pairs of eye-glasses held up, all with the name "The Lens" (6 photos over 3 days) and 2 close-ups of eyes, 1 with the caption 'contact lens.' The "ghost" meme began with 2 photos of no people, labeled with the name "ghost" (June 9th, July 11th). Next, the ghost appeared with 2 Innovation Center interns (July 14th & 15th), then a 3rd Innovation Center intern joined them (August 1st, their last day), followed by the ghost jumping into a photo with 3 Consulting residents (August 1st). The ghost first appearing alone, then with groups of increasing size, might point to the presence of a group emboldening our photo behavior. It also shows such behavior can act as a contagion, transferring from one group to another. Another Funatic behavior was photobombs, or intentionally jumping into another's photo; we counted 31 photobombs.

The **Check-in** pattern describes photos taken to show that someone is arriving or leaving the office, especially evident in photos containing one person. One user inter-viewed described the #selfiestation as "like a voluntary census poll." Typically in these photos, the user leaves a caption like "late" on the way in and a future destination on the way out, e.g. "off to Yorktown." Often, the user will face the entrance or exit, depending on their direction, rather than face the camera. A series of 6 photos depicting this pattern, taken one night from 9 pm–7 am, chronicled an employee's overnight stay in the office working – in this case "not leaving" was the check-in.

The **Communicator** pattern describes photos left hoping to communicate something to others in the space. This included the Senior Vice President of the Consulting division leaving a message for residents in her division in the form of a caption addressing them. The interviews were especially helpful in identifying Communicator examples, such as one user saying that he sometimes posed pointing to his baseball cap or tagged them with "go-sox", and described this as "try[ing] to generate fan support for the Boston Red Sox." Another described taking a photo with a poster of a speaker the office would be hosting, to notify other residents of the talk.

The **Doppelganger** pattern describes the curious practice we observed in 10 photos where users pose with a likeness of themselves. The likenesses observed included

badges, old driver's licenses, images on a phone or tablet, and a puppet. Sometimes the person labeled themselves twice to indicate they appeared more than once.

Finally, the **Groupie** pattern describes those whose #selfiestation identity is closely tied to the groups they are posing with or with a special interest in publicizing their network. While the majority of the photos taken contained only individuals (60.9 %), analyzing from a user-perspective tells a different story. Of the 336 users, the majority took at least one photo with others (78.6 %). Further, 190 (56.5 %) users *only* appeared in group photos. Those interviewed spoke of preferring to pose in a group: "for me, I'm kind of one of these types that likes to do it with people. So my selfies will be when I'm with someone" and "I guess I never stopped by myself and have a selfie taken" as one user said who seemed to feel a kind of peer-pressure to take a selfie with the group he was with. The existence of such a large amount of users whose entire experience was defined by the groups they posed with led us to further analyze group behavior. We found that those who had ever posed as part of a group take significantly more photos on average (M = 4.63, SD = 9.74) than those who only pose by themselves (M = 1.17, SD = 0.50): t(268) = 5.737, p = 0.00.

Some users seemed to publicize being part of a group. For example, 20 photos show residents posing with family (13 residents, 26 family members such as children). As a photo of an office visit meant for family could have been taken on a camera phone, we believe it was to show their family to their colleagues. Those interviewed said group photos gave them insights into others' networks: "But I saw them in the #selfiestation and I was immediately able to think 'oh, I didn't know these people knew each other. And that they interact together.'" The strength of ties was also speculated on, "They must know each other pretty well to take a selfie together….if I met some new people, I wouldn't be like 'hey, let's go take a selfie together!'" Of the 147 resident group photos, 83.7 % show residents from the same division, with only 24 from mixed divisions, also suggesting group photos may indicate tie strength.

4   Discussion and Conclusion

We deployed the #selfiestation, a kiosk allowing users to take photographs of themselves, in an office location of IBM. Our contributions include a longitudinal study (6 months) of usage patterns as well as the effects of such a kiosk in the workplace. We analyzed the 821 photos taken by 336 users and conducted 10 user interviews.

Our findings show the #selfiestation experienced high participation among residents (81.5 %). The number one motivation mentioned was to have fun. Interestingly, #selfiestation usage increased at the end of the work week – perhaps employees felt this was the most acceptable time for having fun and taking selfies at work. Users described how the kiosk increased their happiness at work, humanized colleagues, and increased community building, with some mentioning the positive feedback they got from others on their photos and saying they would be more likely to reach out to those whose photos they had seen at the kiosk. This ties in with past research on the value of social networking at work [3] and the ability to learn about office culture through photos [10]. Due to the perceived benefits in the workplace, we have begun deploying kiosks at other IBM office locations around the world (Shanghai, São Paulo, etc.).

In this office, employees from various divisions had recently moved in and users mentioned the benefit of learning others' names. This suggests that other spaces with people who may not know each others names, such as conferences, may benefit from such a kiosk. As our kiosk was in a public space, we didn't require users to authenticate and they had flexibility in choosing names to label photos. Preliminary findings show some users made use of this, including using different names over time, group identities, etc. Studying the motivation behind this and the perception by others would give further insights into the conflicts between users and social media sites requiring "legal" names, such as GooglePlus & Facebook [2]. The trade-off of representational flexibility versus benefits of learning others' names requires further study.

We identified 5 #selfiestation usage patterns: Funatics, Check-ins, Communicators, Doppelgangers, and Groupies. The #selfiestation was designed to be a social experience, with half the screen devoted to seeing photos taken by others and the ability to leave a caption. Users took the opportunity to engage with others, clearly seen in the Communicator pattern and Funatics pattern memes. Group behavior was strong, with 78.6 % of users posing with others at least once, and the majority (56.5 %) *only* posing in groups. Those interviewed felt the group photos represented a social network that was sometimes previously invisible to them and speculated ties were especially strong among those posing together. Further research could study these networks and strength of ties, and compare it to the company's social networking platform. We also found that those who had ever posed as part of a group posted four times as many photos as users who did not pose with others. Posing with a group could have reduced the barrier to participation, also consistent with our interviews.

Further work is needed to see if these patterns translate to other social media sites, such as Instagram. For example, the nature of the physical kiosk may have made it easier for users to discover and participate in memes. It is clear some behaviors translate from camera phone selfies to the #selfiestation, such as photobombing. Our research is also consistent with prior research on the engaging nature of human faces [1] – with 93.9 % of our photos containing faces and users mentioning that seeing these was compelling, with residents looking daily, some multiple times a day.

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