

Curated City: Capturing Individual City Guides Through Social Curation

Justin Cranshaw[†] Kurt Luther[†] Patrick Gage Kelley* Norman Sadeh[†]

[†]School of Computer Science
Carnegie Mellon University
{jcransh, kluther, sadeh}@cs.cmu.edu

*Computer Science Department
University of New Mexico
pgk@cs.unm.edu

ABSTRACT

We report on our design of Curated City, a website that lets people build their own personal guide to the city's neighborhoods by chronicling their favorite experiences. Although users make their own personal guides, they are immersed in a social curatorial experience where they are influenced directly and indirectly by the guides of others. We use a 2-week field trial involving 20 residents of Pittsburgh as a technological probe to explore the initial design decisions, and we further refine the design landscape through subject interviews. Based on this study, we identify a set of design recommendations for building scalable social platforms for curating the experiences of the city.

Author Keywords

Location-based services; local search; mental maps; social computing; neighborhoods; urban computing; social curation

ACM Classification Keywords

H.5.3 Information Interfaces and Presentation (e.g. HCI): Group and Organization Interfaces

INTRODUCTION

Every citizen has had long associations with some part of his city, and his image is soaked in memories and meanings.

—Kevin Lynch, *The Image of the City* [11]

We are, each of us, profoundly affected by the experiences we have at the places we go. Whether it be enjoying the familiar atmosphere at a favorite pub, or eating at a popular brunch spot after a leisurely morning in the park, our rich and personal local experiences color how we perceive and interact with the people and places around us. The coalescence of these individual experiences imbues each resident with their

own unique conception of the city, formed over years of association with places, rooted in habit, and influenced by culture, socio-economics, geography, and history. The unique and subjective representation of the city created in the minds of each city-dweller is often called their *mental map* or their *image of the city* [11].

Researchers have long studied how mental maps can be used as a way to probe peoples' perceptions of the built environment [11], and to delve deeper into the cognitive processes that govern city life [13]. Recently, in the context of the mobile and social web, mental maps have been explored as a framework for analyzing and improving the richness of location-based services [16, 1], which have traditionally presented a sanitized view of place, averaging the variability of personal experience into a rating, 4.3, 3.8, 4.8 out of 5 stars.

Although mental maps are unique to each individual, they are also inherently social, reflecting one slice of the shared urban experience. Lynch called the commonalities across a collection of mental maps the city's *public image* [11]. Public images reflect the shared local and cultural knowledge of the populous, facilitating coordination and cohesion between individuals and the environment. Harnessing this collective wisdom presents enormous opportunities for building online local services that are more faithful to the urban experience. One challenge in realizing this vision lies in externalizing mental images of the city in a manner that is scalable to millions of people while capturing the richness of their personal perceptions. Once collected, this information must be aligned and aggregated in a manner that captures usable public images of the city.

It is in this gap between the scalability and the fidelity to personal experience where our work makes a contribution. We introduce Curated City, a website that explores collaborative and social mechanisms for producing scalable, yet expressive mental map externalizations. Users of Curated City are tasked with producing a personal guide to their city by chronicling the experiences and Instagram photos that best express the places that they care about. To highlight the overlaps between individual mental maps, users' guides are visible to one another and are networked via their common places

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and shared experiences, allowing the city’s public image to emerge through social curation.

In this work we present qualitative results of a two week field trial of a functional prototype of Curated City, in which 20 residents of Pittsburgh were asked to login and add content to their personal guides every day. At the end of these two weeks, we used their experience with the system as a technological probe [8] to gather their perceptions of the technology and the overall concept, so that we might further explore the design landscape. By combining interviews, and an exploratory analysis of site usage data, we uncover some of the successes and stumbles of possible system designs for assisting denizens in curating their city. The results of our efforts are synthesized into a set of insights that designers can incorporate into future urban and social technological systems.

BACKGROUND

A mental map is simply a person’s biased internal image of a large area of space, encompassing all their local knowledge, and formed through the totality of their experiences and perceptions of the environment. This knowledge can be spatial, but can also be sensory, experiential, cultural, personal, or emotional. Mental maps were introduced by Kevin Lynch in his groundbreaking 1960 work, *The Image of the City* [11]. Lynch’s objective was to formally study qualities of how the urban built environment were perceived by the city’s populous. Doing so required a formal methodology for externalizing peoples’ mental images of the city. He developed a detailed protocol that asked people to describe their city, to provide a hand-drawn sketch of its main features, and to detail various routes they frequently took, including discussions of any perceptions and even any emotions they might have felt at points along the way. Lynch collected dozens of these mental maps, and then formed a representation of the city’s public image by aggregating the individual maps along a fixed set of elements of the urban form: paths, edges, districts, nodes, and landmarks. Following Lynch’s seminal work, the methodologies he employed have appeared prominently in other research areas,¹ including social psychology [12, 13], geography [18], cognitive psychology [19, 6], and artificial intelligence [9].

More recently, mental maps have begun to influence research in human-computer interaction, especially relating to location-based services, and the mobile and social web. Bentley et al. replicated Milgram’s study protocol to see how modern technologies, including check-in systems such as Foursquare, are influencing peoples’ perceptions of place [1]. Researchers have also begun to explore ways of scaling this process up technologically. Quercia et al. built and studied a crowd sourcing system that utilized Google Street images to investigate Lynch’s hypotheses about imaginability on a large scale [16]. Cranshaw et al. examined whether social media can be used as an externalization of people’s mental maps; Livehoods used foursquare check-ins to produce a “public

¹Similar concepts have appeared in the literature under various names, including *image of the city*, *mental map*, *cognitive map*, and *psychological map*, each having slightly different connotations. We use the term *mental map* referring to Lynch’s formulation [11].

image” of a city’s neighborhoods [4]. Curated City’s use of mental maps is more subtle than these works. Rather than revisiting past research questions in the context of modern technology, we use the mental maps as a theoretical framework around which we designed a social curation system to highlight the public’s experiences of the city.

There is a long history of work exploring computing technology and the city [15, 7], or more broadly technology and local communities [20, 5, 17]. In offering a system that both studies and influences people’s attachment to place, and their relationship with their city and its neighborhoods, our work makes contributions to these areas as well.

Our work also ties into the social computing and creative online collaboration literature. In designing Curated City, we were inspired by work investigating remixing in collaborative systems, such as Scratch [14], ccMixer [2], and Reaktor [3]. By allowing users to re-share elements of another user’s guide, Curated City also provides affordances for remixing, such as buttons for quick re-sharing and automatic attribution [14]. Unlike these other systems, the content being shared on Curated City centers on lived experiences rather than multimedia.

CURATED CITY

Curated City is a social website that allows people to create a guide for exploring a city, neighborhood by neighborhood. The main website is divided into two segments. The left segment displays an interactive map of the the city’s neighborhoods, serving as a navigation interface to let users click on and select a neighborhood. The right segment displays an information feed of recently posted content about the currently selected city, neighborhood, or venue. An example of the main website view can be seen on the left side of Figure 1.

Curated City separates Pittsburgh into its 90 distinct neighborhoods as defined by the City of Pittsburgh, whose polygonal boundaries are overlaid on the map view. Each neighborhood was pre-loaded with a list of venues located there, which were determined in advance from Foursquare venue data. We launched the site with 6198 venues distributed across the neighborhoods.

Our prototype design allows for two types of content. **Photos** can be associated with venues or neighborhoods, and are imported into the site through the user’s Instagram account. Additionally, users can tag venues with **experiences**, which are short free-text descriptions that complete the prompt: *This is my favorite place for ___ in the neighborhood*. Experiences allow users to richly verbalize what they love, recall, or frequent a certain venue for. By allowing users to create these in any way they saw fit, we did not prescribe a small set of sterile activities, but rather allowed an open-ended creative expression.

Users of Curated City create a guide which is viewed outside of the map view (see the right side of Figure 1). These guides collect a single user’s experiences, arranged and browsable by neighborhood. As a user creates content (photos and experiences), two things happen. First, Curated City automatically generates an entry in the user’s guide, properly insert-

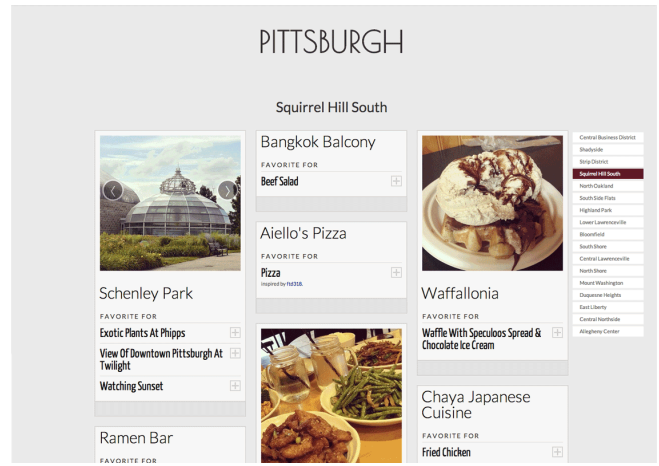
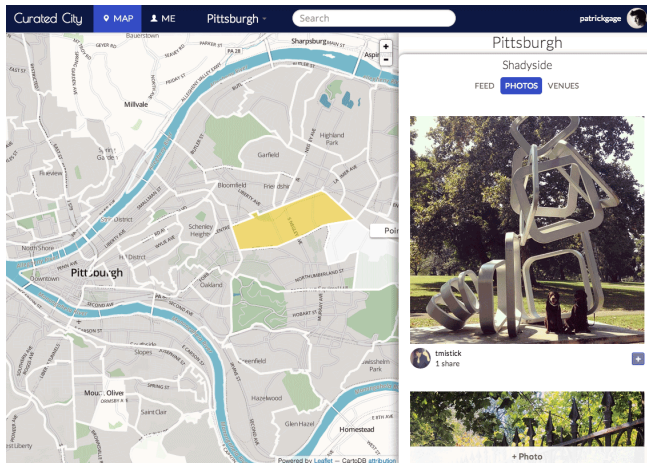


Figure 1. Two screenshots of Curated City. Left: The main map view, with the neighborhood Shadyside highlighted and a selection of photos that have been posted of Shadyside. Right: A participant's guide of the Squirrel Hill South neighborhood featuring a mixture of experiences and photos.

ing the content with the associated neighborhood and venue. Second, the content is shared in the appropriate public information feeds for the whole city, the neighborhood, and the venue, linking back to user's guide page.

In addition to adding content of their own, while browsing other users' content either in the information feeds or on others' guides, a user can click "plus" buttons on this content to re-share it on their own personal guides, giving attribution with a link back to the creator. In this way, guides in Curated City are "re-mixable," simultaneously making it easier for users to quickly build up a guide, while also allowing for social curation to emerge around shared urban experiences.

Design motivations

Building a personal city guide is a challenging task—the creator must assemble from their long history of urban interactions, those places and experiences that they feel are noteworthy enough to mention. Some urban experiences might be easily recalled, for example ones that happened recently or that occupy a prominent role in the creator's life. Still others might be difficult to bring to the mind's surface without some external stimulus. Indeed, the role of the interviewer is crucial to Lynch's protocol. In order to ensure that nothing is missed, the subject's perceptions of the city must be continually probed through free association, in order to explore and discover relevant findings that even the subject may not have been fully cognizant of.

There are two main challenges that Curated City attempts to address. The first is one of externalization: making external a person's mental image of the city. The second is one of aggregation: combining the many individual images into a public image of the city. The features of our prototype design were deliberately chosen to explore the range of possibilities that envelop these two challenges. Elements like the feeds were designed to lessen the burden associated with externalization. In this way, as users observe and are inspired by the work of others, they can free associate, and even reuse others' content, serving in many ways, as a proxy for the interviewer

in Lynch's protocol. The design of the prompt for collecting experience text was introduced to focus the range of possible user inputs, simplifying the creative process, while still allowing users to share highly expressive sentiments. By nudging this experience text to be short and focused, we also hoped to increase the chance for overlapping experiences, creating the opportunity for aggregation through social curation.

Why neighborhoods?

Neighborhoods are a primary unit of organization in a city; their names and boundaries are socially constructed entities, and so naturally neighborhoods play a crucial role in defining the city's public image. This is in strict contrast to the role that neighborhoods play in location-based services, which often rely heavily on latitude and longitude as the central unit of location orientation, and use neighborhoods, if at all, as secondary descriptive data attributes. We wanted to design a system where neighborhoods play as central an organizational role in the application experience as they do in the real-world urban experience. By designing Curated City around neighborhoods, our intention was to better align the application experience with people's mental maps, and to similarly allow for social curation to emerge around the common language that is the city's neighborhoods.

Why not mobile?

Designing Curated City as a desktop-only site was an intentional decision. Had we created a mobile app, our users might have felt they needed to "go out" just to add content. We wanted to make it clear that this was not a check-in app, and that people could create content about any place they were familiar with, regardless of where they visited during the study.

RECRUITMENT, DEMOGRAPHICS, AND STUDY DESIGN

Recruitment was done via three channels. We distributed flyers to busy spots on and around the Carnegie Mellon University and the University of Pittsburgh campuses. We also posted an advertisement on Craigslist, and we asked several Pittsburgh businesses and neighborhood groups to share our recruitment material on their Facebook and Twitter profiles.

Participants needed to be Instagram users with a public and active Instagram account, they needed to be at least 18 years old, currently live in Pittsburgh, and have lived there for at least one year. This recruitment and study protocol was reviewed and approved for the inclusion of human subjects by our university's Institutional Review Board.

Participant Demographics

Our 20 recruited participants were nearly evenly distributed across sex; 9 were male, and 11 were female. Most participants tended to be in their mid 20s to early 30, with a mean age of 28.2, a median of 26.5, and a standard deviation of 6.4. Our oldest participant was 60, and our youngest was 18. The mean number of years living in Pittsburgh was 10.6, with a median of 5 and a standard deviation of 12.1.

Study Design and Required Tasks

We designed the two week study to serve as a technological probe, immersing the participants in the social experience we created, so that we could gather their thoughts and insights, and foster a richer discussion about creating a guide with Curated City. The assigned tasks were intended to be as minimal as possible, while still encouraging participants to be engaged with the service, and with each other for a meaningful amount of time. Participants were required to login to the system every day, and contribute at least three experiences per day to their guides (either by creating a new experience, or by re-sharing someone else's experience). We did not require them to share any photos over the course of the study. If participants fell behind or forgot to login, they were sent a reminder email to add more experiences. Additionally, every 48 hours, all participants were sent a digest email that linked to the most active user guides and most active neighborhoods over the past 48 hours. This served as a positive reinforcement and motivational incentive to login and add content. Participants were paid \$20 for completing the study. And as an added incentive, we asked them at the end of the study to vote for who they thought made the best Pittsburgh guide. The winner received an additional \$50.

FINDINGS

At the end of the two week trial, we invited the 15 most active participants to visit for a 30 minute interview, 11 of whom were able to attend. The goal of these interviews was to gather a more complete understanding of the range of possible user experiences, so that we might clarify the design landscape for building socially curated city guides. In these discussions, we focused on the creative process that participants engaged in as they developed their Pittsburgh guides, honing our attention to issues of collaboration, inspiration, the role of neighborhoods, intended audience, the types of experiences participants added, their desires for exploration, and their sense of community or civic pride.

The Process

With such an intricate multi-layered task, it would be natural to expect significant variation in the process that participants took in creating their city guides. Here we describe some of the common and uncommon procedures participants went through as they engaged with Curated City.

When participants were getting started, it was common for them begin with their intimately familiar venues, often ones in their home neighborhoods. For example, Jordan, a 27-year-old administrative assistant, and 9-year resident of Pittsburgh said that "I tried to start with venues that are closer to where I live, venues that are in my neighborhood that I frequent often, including the reasons why I go there." As they got more comfortable with the process, and as they began to see more of what others were adding, participants began to branch out from their most familiar places to see what they recognized in other neighborhoods. Danny, a 24-year-old clerk and intern, and 6-year resident of Pittsburgh said "a lot of time I was looking at what was available in the [neighborhood venue lists], and seeing what I recognized, and seeing which places I go to a lot, or was really special. I would pick a neighborhood that I was familiar with, then I would scroll through the venues to the ones that stood out."

Some participants took a much more formal approach than others. For example, Jane, a 28-year-old non-profit program coordinator, and a 5-year resident of Pittsburgh, took a uniquely thorough approach to making her city guide. Before even adding anything to Curated City, Jane created a Google Document where she made a numbered list of all the places she could think of, and for each of these, she briefly described what she found interesting and what she liked about each. Then she went through her computer photo library and annotated the list with whether or not she already had a photo of the venue. If she encountered any interesting photos on her computer that were not yet on Instagram, she would import them to her Instagram library. Over the course of the two weeks, she made an attempt to visit and photograph the venues on her list with missing photos. Although Jane's approach was definitely more engaged than others, for her this wasn't much out of the ordinary. She enjoys photography as a hobby, and maintains a blog about her travels. As she says, "I take pictures of stuff, food, restaurants, places, and I keep a blog on and off. So it's easy for me, because I do it anyway."

Another more formal approach was taken by Nora, a 40-year-old technical support engineer, and life-long resident of Pittsburgh. Nora described three ways she typically went about adding to her guide. In addition to the common methods of listing her favorite and familiar places, and of generally browsing the website and seeing what came to mind, her third (and primary) approach was Instagram-driven. She uses Instagram frequently to document the places she goes in the city. As she describes: "[when] I was somewhere I wanted to take an Instagram photo, I wouldn't really publish it to Facebook and Twitter like I normally do, but I'd put my own hashtag of #curatedcity on it, and then #bestwhatever." Later when she was home, she would use these hashtags to remind her of the things she wanted to add to Curated City.

Types of Venue Experiences

One of the unique design ideas that Curated City explored was the use of short free-text input to express urban experiences. So that we could explore the range of experiences that people share, we purposely gave them very little guidance beyond the input-field prompt. We didn't make any suggestions

as to what kinds of experiences they should document, and we didn't correct them if we felt their experiences deviated from any intended use. In this section we explore participants' perceptions about the kinds of experiences they personally submitted and of those they observed others adding.

General Versus Specific Experiences

The experiences that people created over the two weeks differed greatly in terms of specificity. Some people added highly general experiences that were impersonal and described common activities available at many distinct venues. Examples of these more general experiences included: *yoga, indian food, brunch, dessert, pho, curry, pizza, scotch, pad thai, tacos, and burgers*. Others added experiences at the other end of the spectrum that were highly specific, for example experiences that were uniquely available at only one or few venues such as specialty menu items, or personal anecdotes about a place. Examples of these more specific experiences included: *late night basketball, taking a walk in the evening, dog friendly ice cream, dogwoods in the spring, the pastrami headwich, spiced pumpkin and pear soup, cold brewed coffee, an outside date, hungover breakfast, succulent plants, and "Silver Clouds."*

We asked participants to comment on the distinctions and differing roles of specific versus general experiences. Since they took less creative effort, some participants found general experiences less interesting (both to create and to read) than personal or specific experiences, especially when the experience description was very similar to either the name, or the category of the venue (e.g. "favorite pizza" when the venue is a pizzeria). Jane, who preferred sharing specific experiences, describes her frustration reading general experiences shared by others:

Lots of people just said "cocktail" or "pizza" or something that is already in the store's name. Why would I want to know or read this? ... Tell me specifically what I should get, or what that restaurant is famous for, or if I go to a place, what time should I go to see what?

To Jane, specific experiences were more useful, since she felt they better characterized what is unique about a place, and why others might want to visit it. Valerie shared the same sentiment, saying "specific makes it more fun. It gives it more personality." She also felt that being the first person to share something interesting and specific about a place gives a person "bragging rights" to that experience.

Yet, some users preferred sharing more general experiences, feeling them more useful as an index or a search term for people are looking for places to go. Nora, who is a longtime user of the social bookmarking site Delicious, viewed adding experiences as a form of venue tagging, saying "these are tags, they're a way to quickly access information." She characterized the experiences she added as "buzz words," short, general descriptors of what it is she likes about a place. She and her husband go out frequently to many places throughout the city, so for her, "tagging" with general experiences was a natural way to organize her favorite places.

Some people saw both sides of the issue, seeing value in both specific and general experiences. Jordan for example felt that "both aspects can be really helpful." She felt that specific experiences are more helpful to people already familiar with an area that might need detailed advice about where to go, but she felt that people that are new to an area might need more general experiences to find what they need.

These insights highlight the critical roles that *both* general and specific experiences play, and the importance of having a system that cultivates the sharing of each. Whether they preferred sharing general or specific experiences, participants appreciated that could freely express themselves. As Christy said, "I thought it was good that you could put whatever you wanted. I know a lot of things sometimes limit what you can say about a place. I thought it was nice that you could say either a specific menu item, or more general things."

Positive Versus Negative Experiences

Participants were strongly enthusiastic about creating guides with only positive "favorite" experiences. A number of advantages to this approach came up in the interviews. For many people, they found it simplified the process of making a guide, by getting them to focus on something specific, or as Danny describes it "you had to really think what in particular is that you like so much about it. ... it makes you concentrate solely on what makes it good."

Several participants contrasted the positive-centric experiences of Curated City, with the sometimes very negative reviews of systems such as Yelp. Jordan, for example says, in contrast to Yelp, where "there's a lot of negative feedback," she liked "the idea of people going in search of a positive experience." Valerie, who is a social media consultant for local businesses, mentioned how worried businesses are about getting negative feedback on social media. She said, "I think it's nice to have a website that encourages people to write positive things. It's kind of like, if you don't have anything nice to say, then don't use it at all."

Prompting participants to describe their *favorite* experiences didn't mean negative experiences had no role to play. A few people wished the website let them express a negative opinion. Sandy, for example said "there were definitely places I don't like. ... I would have wanted to in general say what my experience was like."

Some people didn't want to change the prompt, but wanted to use it sarcastically to express negative experiences in a humorous or "snarky" way. For example, one participant wanted to add a "best place to get shot" experience to a popular nightclub in Pittsburgh's Strip District. She said she only resisted because she was part of a "serious" study, saying "I was tempted. If it wasn't a study, I would have." One participant did actually use experiences in a sarcastic way on a few occasions over the two weeks. For example, he added favorite "worst smelling dumpster in the city" to a popular sushi restaurant in the South Side. When asked to comment on these these sarcastic experiences, participants reacted positively, generally seeing sarcasm as a perfectly legitimate, if not fun, use of the website.

Collaborative and Social Factors

Although users of Curated City each developed their own personal city guides, the process they engaged in while developing them was inherently social, designed to facilitate both direct and indirect collaboration among users. In this section we explore some of the insights shared by our participants about these collaborative and social factors.

The Activity Feed

The primary way participants encountered the social elements of Curated City was through the activity feed. As they browsed a venue, a neighborhood, or the city as a whole, the activity feed showed all experiences added by others to the selected area, arranged in reverse chronological order. By bringing to the surface commonalities in their experiences, and in the neighborhoods and venues that they frequent, the activity feed provided the links that networked the participants' mental maps, facilitating their social externalization.

The feed was designed to be a jumping off point, sparking ideas for where to browse next or what content to add next. This often happened directly, for example, when a person browsed to the explicitly linked user guide, venue page, or neighborhood page associated with the shared experience. But just as often the jumping off was more indirect—seeing a shared experience in the feed often jogged a person's memory of a related experience or venue, often meaningful only to the participant. As Sandy, a 23-year-old concierge, and life-long resident of Pittsburgh said, "I enjoyed looking at that stuff. I mostly like to see what other people were thinking, sometimes it sparks things in my head too."

Some, like Jane, used it every time they logged in, reading every experience people added:

I just scrolled down to the last time I logged in, and went through what people added. . . . I look at the venue first. If it's a place I've heard about that sounds interesting to me, I look at what the experience is.

Others, like Jordan used it more organically, as a way to see what venues and experiences were getting attention:

I liked to work off of what other people were saying or to gauge my ideas from their experiences. Like Fuel and Fuddle for example. I saw that it was getting attention, it's a popular place to go, so I wanted to share what I like about it, after disagreeing what someone else had said, so I could kind of balance it out.

In addition to working as a source for social inspiration, the feed also functioned as a way to get acclimated to the system, by seeing what others were doing. As Nora told us "I did like seeing what some of the other people did, because it gave me a framework for what I should do at the beginning."

Although most found the feed useful, some participants reported aspects of the feed that were lacking. Several participants would have preferred that the feed be more visual, integrating the photo-sharing activity with the experience sharing. Also, many expressed the desire to be able to "follow" others, so that they could have more control over what ap-

pears in their feed, or as Jane put it to "screen out those that put up boring guides."

Re-sharing the Content of Others

Most users did engage in some re-sharing, though their opinions and explanations for why they re-shared (or didn't) varied. Re-sharing was seen by participants as a way to "fill in" their guides, making them more complete by leveraging other people's content that they valued or supported. Most of the time this was in the context of agreeing with another person's favorite experience and wanting to express the same experience on their own guide. However, some participants noted they occasionally used the re-share as a bookmark, by adding an experience to their guide that they'd heard about and are interested in, but haven't yet tried. This suggests that there might be a need for separate user actions on an experience.

Some described re-sharing as a way to gather support for a particular experience at a venue. As Danny expressed,

I think it [re-sharing] bolsters a certain area's reputation. If one person suggests it, and another agrees with it, like "yeah it is a good place for that," it sort of adds a sense of community, that it's being vouched for.

Others noted that this reputation might be useful for local-search, to help decide between venues that offer the same experiences. For example, Nora thought the brevity of experiences helps to focus people's efforts and quickly gather agreement or disagreement about the experience: "if you get a lot of people saying similar things about a venue, that tells you more about it than the 15-paragraph Yelp review."

Participants generally liked that guides would link back to the original experience creator on re-shares, viewing it as a way both to give proper attribution for someone's effort, and as a way to discern status. As Valerie put it, the attributions speak to "who is influential in the network."

However, not all participants were in favor of re-sharing. Some enjoyed the creative process of coming up with their own experience, and viewed re-sharing as "cheating." Others viewed *not* re-sharing as a fun challenge; if someone had already written an experience that was close to what they wanted to add, they enjoyed coming up with interesting variations rather than re-sharing. Still others didn't re-share because they wanted to retain "ownership" of their experiences. Such reactions are similar to those observed in the study of re-mixing in creative collaboration [14].

Sources of Inspiration

Participants were often inspired by the content they browsed from other users. We can think of this as an indirect form of creative collaboration; although they were not directly working together on the task, their final creative products were influenced by one another. A person would see an experience shared at a venue, and something about it would "spark" them to share an experience of their own. This might simply be a natural variation of the inspirational content, for example they might favor a different venue in the same neighborhood for the same experience. Other times the venue might spark them to think of another similar venue (either nearby, or similar in category) that they wanted to add. Still other times, it

might lead them to add content that is not related in any clear or obvious way, a free association that only they understand.

Civic Pride and Collaboration for the Common Good

Several participants reported feeling a sense of civic pride as they described their favorite Pittsburgh places. Their pride for their city and for the places that they visited influenced the final guide that they made. This sense of pride was best expressed by Valerie:

When you're from Pittsburgh, and you're born and raised, it's very important what places you think are the best at certain things. Especially if you're from Squirrel Hill, its very important which pizza shop you think has the best pizza, so you want to claim that as strongly as you can, because it gives you a social circle you're going to be part of for the rest of your life.

Valerie's quote underscores how she used her guide to shape her presentation of self with respect to civic pride. Other participants rewarded venues and neighborhoods that they associated with positive experiences. Christy talked about "rewarding places that I like for being good places" by adding them to her guide. For example, she mentioned including a particular Hungarian restaurant because "nobody knows about this place and it's really great."

Similarly, some participants described the process as a form of collaboration for the common good. Although they each were building their own uniquely personal guides, for some there was a sense of contributing these personal experiences to a collective "public image" of the city—a view of Pittsburgh as seen by its residents. Danny described this feeling as "filling out the city by people who live there."

Audience

When we asked participants to create a personal guide of the city, we did not indicate whom the guide should be for. Yet, most participants independently arrived at an audience for their guides, which shaped the types of experiences and photos they chose to include or leave out. These audiences fell into four categories of roughly decreasing familiarity: self, friends, locals, and tourists. Most participants had a primary audience in mind, but a few, like Jordan and Jane, felt that an ideal guide would speak to multiple groups.

Some participants viewed themselves as the target audience for their guides. For them, the guides represented a form of personal journaling, helping them record and reflect on where they've been and how they felt about it. This echoes the "personal tracking" motivations other scholars have identified for checking in to venues using applications like Foursquare [10].

Most participants, however, had broader audiences in mind. Friends were perhaps the most commonly mentioned audience, but usually friends from out of town who were visiting Pittsburgh and wanted to know what to do. Jane built her guide around the question, "If my friends are touring Pittsburgh, where would I take them to?" Jordan likewise designed her guide for visiting friends. She described how this exercise clarified her mental map so that she could spontaneously make suggestions:

I have people come in from out of town, and instead of being like "Oh I don't know, where should we go?" The indecisive approach comes up a lot, and I like to know where to go when someone says, "Oh, I'm kind of in the mood for this thing," then I know what the best place is. And now that I've done this, I have sort of a log in my head.

Nora took this idea further, viewing her guide as a way to externalize her mental map so that she could share it with others and even remove herself from the equation. She said, "I'd love to have a guide that I can share with people... I do want to be able to say, 'Just look here; find stuff this way.'"

Other participants designed their guides for a more general audience. But even without specific people in mind, they were able to circumscribe which types of content would be valued by imagining themselves in those roles. For example, Christy selected the experiences in her guide based on what "people like me" were likely to enjoy. Jordan, whose audience included locals, sought to highlight more obscure experiences in popular venues. She said:

I find that many people, when going out to restaurants, tend to stick with a staple menu item—Pad Thai, for example—and I like that I was encouraged to share a unique favorite; in the hope of expanding others' comfort zones.

Danny, whose audience included tourists, excluded chain businesses from his guide in favor of locally owned venues, which he felt tourists were more likely to appreciate: "What's the point of a curator if you're just going to go to McDonald's or the places you're already familiar with?"

Finally, Valerie imagined putting together guides for specific events with highly specialized audiences, such as family members and friends visiting the city for a wedding, or conference attendees descending upon Pittsburgh and wanting to "venture out of their hotel lobby."

Photos

Photos played a central role in the Curated City experience for many of our participants. Since we required all participants to be Instagram users prior to the study, their affinity for photography was not surprising, but we did not expect photos would feature so prominently into participants' guides. In fact, our study did not require participants to add any photos whatsoever. Yet, with few exceptions, guides were adorned with a variety of colorful photos depicting storefronts, meals, social gatherings, and other relevant images. When we asked about this, many participants' eyes lit up, and they extolled the value of photos:

I just really like pictures. I'm more interested in a visual experience sometimes than I am in reading about things. So the more pictures the better in my opinion. I like to get an idea, even with restaurants, what the layout of the restaurant is, or what the food is like, or what the ambience is. (Christy)

Pictures tell me more about a place. I can see the ambience of it, or if the picture happened to be the topic that the person's experience is about, then it tells me more about it, or in general, pictures grab my attention. (Jane)

As Christy and Jane suggest, much of the value of photos lies in their ability to convey information about a venue — its ambience, the people who go there, the quality of the products and services — in rich detail without writing walls of text. But there were also benefits unique to Curated City. Because experiences were also designed to be concise, they paired well with photos, and the more talented photographers in our participant pool took advantage of this interplay when crafting their guides.

As described above, Jane took an unusually comprehensive approach to illustrating her guide, systematically adding existing photos from her Instagram library and then making an effort to take new ones to fill in the gaps. Most participants focused on adding photos they had already taken, but an active subset made an effort to take new photos while they were out. Sometimes participants were influenced by what photos had (or had not) been added by others. For example, Nora initially added very specific photos to her guide referring to particular experiences. As she grew to realize many venues and neighborhoods lacked more basic images, such as building facades or interior views, she “got more general with the photos, to just get a picture of the space,” which she thought users would find more helpful.

The Role of Neighborhoods

City neighborhoods played a central role in the design of Curated City. In this section, we highlight some of the neighborhood related observations shared by participants in the interviews.

Neighborhoods as an Index for Navigation

In Curated City, neighborhoods played a significant role as an interface for accessing the website's content. In order to get to a venue, users could use the search bar, but often they didn't have a particular venue in mind first, and would instead click on a neighborhood they were familiar with to browse the venues that were there. Christy describes this process, “A lot of times I wasn't looking for anyplace in particular, I just clicked on a neighborhood and thought ‘do I know anything here?’” Such indexing was also helpful with respect to the neighborhood activity feed, as a window into what other people are doing in the neighborhood.

Some participants thought neighborhoods were a natural structure to use for navigation in Curated City, because they reflect how people typically move about the city. Christy comments on this aspect, “[this is] how I would use it in terms of looking for things. . . . I would know generally where I'm going and I would use it to look for things in that general neighborhood while I'm there.” Danny thought this would be especially useful to people who might be new to the city, noting for example that new students coming to a university might want to know what places are in their college neighborhood. Jane thought indexing content by neighborhoods was useful “because people are usually active in only a few

neighborhoods most of the time.” Similarly, Nora felt “it's really useful to do things by neighborhood,” because Pittsburgh has such distinct, and geographically separate neighborhoods, making it “hard to get from one neighborhood to another.”

Neighborhood-based navigation also made it easier for some participants to add content. Danny describes this: “I like how it was local to a region, so you didn't have to think in *all* of Pittsburgh, if I had to go for *one* place for sushi . . . , I like that way better.” Neighborhoods also allowed multiple favorites for the same experience but in different neighborhoods, easing content creation by allowing for the re-use of experiences.

As a Small City or a Community

Neighborhoods also came up in the interviews in terms of how they related to sense of community. Sandy described neighborhoods as being self-contained units: “I feel like a neighborhood is a small city, and there is so much to do in each one.” There was a feeling that adding content in a way that strengthens the perception of the neighborhood, also strengthens the sense of community there.

Valerie, as an employee of the Shadyside neighborhood chamber of commerce, often thinks about neighborhoods, and how they are defined and perceived. She spoke at length about how positive it was that Curated City used municipal neighborhood boundaries to define where venues are located, as opposed to how developers might market their location. Bakery Square is a new development in Pittsburgh located at the border of three neighborhoods, but as Valerie describes, people's perceptions of neighborhoods can be complex (see e.g. [4]):

People are very sensitive about it. So Bakery Square Part I is in Larimer, and if you look at your guide, that's where it is. But Bakery Square Part II is in Shadyside, and that's where it is. But everyone is like “Bakery Square is in East Liberty,” whereas *none* of Bakery Square is in East Liberty at all. . . . I think that everyone in Pittsburgh should see this map.

Valerie continues, describing how people in the community can be sensitive when real-estate companies will market a development in a way that doesn't give proper attribution to the neighborhood where it's located.

People take pride in their community, people put a lot of effort into making their community better places. A lot of people really do stay rooted in their neighborhood for a very long time. All these new developments are really great, but there's a lot of people who are really hurt by how they are configured or how they are attributed.

She feels a neighborhood-centric guide like Curated City could help strengthen the sense of community in neighborhoods by highlighting the things that people pride about them.

SITE USAGE

Over the study period, the 20 participants contributed 1264 experience shares (259 of which were re-shares), of 932 unique experiences, at 565 venues. The mean number of experience shares per user was 63.2, with median 60, and stan-

standard deviation of 34.4. The top 5 experiences by total number of shares were: *sunday brunch* (11 shares, 8 users, 7 venues), *beer selection* (8 shares, 3 users, 6 venues), *pizza* (8 shares, 6 users, 5 venues), *milkshakes* (6 shares, 5 users, 4 venues), and *people watching* (5 shares, 3 users, 3 venues).

To get a sense of how geographically clustered the participation was, we can look at experience distributions across neighborhoods. Per user, the mean number of neighborhoods in which participants had experiences was 14.0, with a median of 12, and a standard deviation of 5.3. We can also look at what percentage of a participant's experiences were inside their home neighborhood. The mean percentage of within home neighborhood experience shares was 19.1%, with a median of 14.4%, a range between 0 and 66.6%, and a standard deviation of 14.4. The top neighborhoods participants contributed experience shares to were Squirrel Hill South (140), Shadyside (139), South Side Flats (125), Strip District (108), and North Oakland (94).

Although participants were not required to share any photos as part of the study, in most cases they enthusiastically embraced the photo sharing functionality of Curated City. Participants shared 482 photos total, each sharing between 1 and 129 photos, with a mean of 26.7, median of 15, and standard deviation of 31.8.

DESIGN RECOMMENDATIONS

There are numerous complex decisions a person must make in order to outwardly express their personal image of the city. Whether they do so consciously or not, they must decide on who their intended audience is; who they expect will be reading their guide will color almost every other decision they make throughout the process. They must also decide which, among all the venues they have been to, will appear in their guide, and how to best express the experiences that are special to them about these places. This often means striking the right balance between general and specific, between personal and impersonal, between informative and entertaining, and between sincere and sarcastic. We present a series of design recommendations to benefit future designers of social systems that support urban or local curation.

Utilize neighborhoods. Since they are already used so organically by city-dwellers for navigation, orientation, and wayfinding, neighborhoods offer a natural framework for indexing information such as experiences and photos within a city. Despite playing such an important role in the daily lives of city denizens, they are often an afterthought in most location-based services. Putting neighborhoods at the forefront of the design will align the system design better with the participants internal mental map, and produce more expressive externalizations. It will also lead to a public image of the city that helps to strengthen existing historical communities.

Focus on the positive. Local review sites such as Yelp let users leave negative and positive reviews about a place. This encourages people to be critics rather than curators. By focusing on the positive aspects of the city, designers can eliminate the noise from the data while boosting the signal. Stop en-

couraging people to say negative things, and set them free to express the things they truly care about.

Design socially generated “jumping off points.” Creating a city guide is an involved process; knowing where to start and how to express what is important to a person can be difficult. Designing socially generated avenues for free association will allow a person to see others' content and be reminded of things that she wants to add. Mechanisms such as the activity feed add serendipity and encourage creativity and branching out. People find unexpected users, places, and experiences, and each of these is another potential jumping off point for free association to related venues or experiences.

Restrict the universe of possibilities. It can be daunting to list your favorite places in the entire city. People may have many favorites that do similar things, but do them slightly differently. How does one choose? By restricting the scope of favorite experiences to neighborhoods, it frees the creator from having to choose. It also helps people that might be looking for a place to go, especially if they know in advance what neighborhood they want to visit, they can see what experiences in that neighborhood the community has added.

Motivate the general and the specific. General experiences, and specific experiences both have important roles to play, and a well designed system should engineer incentives for both. General experiences are better for searching, indexing, and building up reputations for a place, while specific experiences help add character, entertainment value, and they help people make decisions when they're already familiar with a place. Encouraging a diversity of experience types will increase social activity, and add value. Adding social mechanisms such as a 'favorite' in addition to a 're-share' might improve diversity. Engineering notifications for such interactions is important to strengthen the social incentives.

Nudge newcomers to start with what they know. Encourage people to get started with places they're most familiar with. As they get more comfortable with the system, they will naturally branch out.

Design for civic pride. People can feel strong emotions about their city and the places within it. Design the system to let people effectively express these feelings, and show off their civic pride. The system should foster a feeling of creating city guides for the common good by focusing on neighborhoods and positive experiences

Reward higher quality content with social status. Make profile pages public by default, and give proper attribution when content is re-shared. Rewarding creativity lets people “claim ownership” of interesting experiences that they add. Allow users to follow people whose opinion they admire.

Humor and sarcasm are important. Although one might expect the system to be used in a certain way, people always find a way to use it in funny, unanticipated, and entertaining ways. Free-text experiences allow people to be personal, sarcastic, and humorous in their descriptions. This keeps people entertained, engaged, and motivated to express more about the city.

Support visual experiences. Photos are attention grabbing, emotional, and highly expressive of the experience of place. In building a system for externalizing mental maps, photos are essential. If possible, design and engineer ways to link photos to experiences, and allow photo with captions. Make interfaces such as activity feeds more visual.

CONCLUSIONS

In this work we introduced Curated City, a social website allowing people to build personal guides to their city by engaging them in a process of social curation. We use mental maps as a theoretical framework to guide our initial designs and analysis of how people perceive and describe their urban surroundings. Following a field deployment, we synthesize our findings in the form of design implications for building social systems that support urban or local curation.

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