What It Means To Be The Mayor:

The Social Influence of Location-Based Check-ins

Jessica Torrez-Riley

Elon University

Abstract

This paper analyzes the current literature on foursquare and location-based services (LBS) to

assess hype and motivations of use. Psychological methods of influence are related to the current

status of LBS usage to ascertain the potential for social influence in frequent LBS users. A

preliminary survey was conducted to look into the role of foursquare[1] mayors. The results are

revealed to deduce areas of further research and interest related to the meaning of the mayor title

and the trustworthiness of tips and comment features.


*Keywords*: Location-based services, LBS, foursquare, social influence, check-ins

---

[1] According to foursquare.com/about the proper usage of the name "foursquare" is lower-case unless used in a heading or start of sentence.

What It Means To Be The Mayor:

The Social Influence of Location-Based Check-ins

In the three years since foursquare made its debut at South by Southwest Interactive Festival, the conversation around location-based services (LBS) has shifted dramatically. At the time, the potential for LBS received over-the-top hype and expectations from new media pundits, and foursquare was heralded as the next big thing in social networks (Van Grove, 2009). However, consumers were slower to adopt location sharing and concerns about privacy and relevance soon altered the tone in conversation. Some called foursquare "all hype" and saw limited future potential especially in terms of commercial profitability (Patel, 2010). The critics quick to dismiss foursquare for lack of users neglected to see the deeper implications of location sharing and the still viable potential of location check-ins to create a new class of active, social consumers.

Location-based sharing has the potential for greater influence in the realm of social media because it requires user action and has direct impact on real-world locations.  In foursquare, when a user has earned the top number of check-in days for a given location they are given the title "Mayor." For the consumer this "mayorship" can be a badge of pride and earn them special privileges like free drinks or discounts, but the role of mayor signifies something more than just an arbitrary title. These foursquare mayors have the potential to become opinion leaders in their niche areas of interest.

Academic research into the idea of "mayorship" is extremely limited, but there has been some significant scholarly research into the motivations and social behavior trends of location-based services (LBS): from the 'gamification qualities' and social connection opportunities to the territorial nature of human beings (Cramer et al 2011). Some studies have collected data analysis

through surveys to quantify the primary motivations (Lindqvist, J. et al 2011). This paper will look at the current scholarly findings behind LBS usage, particularly foursquare, and analyze the potential social influence of this technology, which is still very much in its infancy.

**Foursquare: By the Numbers**

Launched in March 2009, foursquare presents four main goals for its users who check in to specific places using geo-location technology: "keep up with friends, discover what's nearby, save money and unlock rewards, unlock your expertise" (*foursquare*, 2012). Initially, foursquare limited usage to 50 major metropolitan areas before expanding to worldwide locations in 2010. It took two years for foursquare to reach 7 million users, compared to Instagram, which reached 40 million users in the same timeframe (*Tech Crunch*, 2012). This April, foursquare passed 20 million users worldwide, 2 billion check-ins, which averages to about 100 check-ins a user, and 750,000 businesses using the merchant platform (*foursquare*, 2012).

Despite these promising figures, these numbers are small in comparison to social network giants like Facebook – more than 800 million users – and Twitter – more than 500 million users (*The Realtime Report*, 2012).  Recent research has found that the issue isn't with foursquare in particular, but rather the overall number of users participating in location-based check-ins is still relatively small – only about 5 percent of all mobile phone users have ever used a LBS (Zickhur & Smith, 2011). Privacy concerns and lack of awareness contribute to these lower numbers, but there is promise in the average of 100 check-ins per user. This suggests that, while the foursquare community may be smaller, it has an active base of users. LBS is still in the very early adoption stage, but the benefits to a slower growing pace are that it gives the technology a chance to adapt and better connect with user expectations.

**LBS Motivations for Use**

The rise of foursquare came in tandem with the boom of micro-blogging, and signaled a shift in location-based applications where users began to share their locations with bigger audiences (Tang et al., 2010). This transition from purpose-driven usage, like using GPS technology to get directions or find a friend's location, to social-driven usage, where users consciously choose to share information with a specific network, indicated a new scope of motivations for users. Instead of being a tool for logistical geo-organization between one or a few individuals, LBS users were now able to use location information to enhance self-representation and share an edited identity to a larger group of people (Tang et al., 2010).

Through surveys and interviews of early foursquare users, Lindqvist et al. (2011) looked into the uses and gratifications of LBS and established a wide range of motivations: from personal tracking, where users enjoyed "curating" their location history, to the gaming aspects, where users felt motivated competitively to earn mayorships and badges. Subsequent surveys have found similar social and identity-driven motivations for sharing location, like check-ins for finding friends, gaming purposes, diversion, discovering new places and new people (Cramer, Rost & Holmquist, 2011). In general the motivations are inline with foursquare's main goals as established earlier, showing user intent matches design intent.

Interestingly, study results found that discounts and special offers were not a major motivator at the time, but Lindqvist et al. suggested that the relatively small size of participating business could be a factor and that motivation in this area may increase as company involvement spreads. While a mismatch between design intent and user motivations cannot be blamed for the slow adoption of foursquare, some research suggests that at its basic level the service offers only

limited benefits to users. Despite the occasional free beverage or discount, the real value in

foursquare needs to come from recommending new, interesting places that directly correspond to

what users might find engaging (Berjani & Strufe, 2011). If foursquare could establish this

model more securely, recommendations would likely become the primary motivating factor

behind usage.

**The potential for influence**

In terms of influence, the most valuable information from the studies on motivation lie in

the discovery that self-representation plays a large role in the types of places users check in to

and share with their friends. The perception of places like fast-food restaurants and the potential

impact of connecting with certain people, like a boss, were significant factors for many users

(Lindqvist et al., 2011). This suggests that LBS users are actively aware of their presence and

seek to fill a 'performative' role when sharing locations. This active awareness puts into play a

host of potential psychological influences, most strongly the ideas of social proof and liking

(Cialdini, 2007).

Social proof is the idea that people are directly influenced by how others behave. In the

case of LBS, this idea is prevalent as people's shared location history is meant to inform others

of where to go. Through the social sharing of check-ins people are indicating what locations are

okay to visit, which can impact the subsequent decisions of the people they share with (i.e. one

friend tries a new restaurant after seeing that several other friends visited the weekend before).

Foursquare even plays on this idea by awarding badges for places that are "swarming," meaning

they have a significant number of people checking in at the same time. The concept of liking,

which states that people are more likely to say yes to someone they know or like, is similarly at

play in LBS check-ins. The biggest potential for brands and businesses to use foursquare for

customer growth will be if they can harness these influences.

**Performative: user management of location sharing**

A 'performative' role means users' awareness affects their behavior and they "present

themselves according to what they think is appropriate for the imagined audience" (Cramer, Rost

& Holmquist, 2011). This management of self-representation means that checking in to a

location can be meant as a display of personal support for a venue. This kind of location

endorsement is more intricate than simply liking a place, because it comes with real-world

context (Cramer et al., 2011). In order to check in a person must physically be at the location

signaling more of a commitment.

Who people chose to share information with is another important aspect of the

'performative' behavior. Cramer et al. found that people are more willing to share location

information with close friends as opposed to strangers; however check-ins considered 'special'

were often shared to larger Twitter and Facebook audiences. Lindqvist et al (2011) found 58

percent of surveyed users had foursquare friends that they had not met in person. These users

were often attributed with frequenting "cool and interesting places" and fulfilled an online social

relationship more in tune with Twitter followers. The idea of 'over sharing' on social media

outlets was of special concern to many individuals, which led to stringent practice of audience

management. This idea that users tend to prefer connecting with friends that are either socially,

geographically or topically close to them plays directly into the concept of liking. Scellato,

Noulas & Mascolo (2011) suggest LBS take this a step further by creating a system of link

prediction that focuses on the friends-of-friends and place-friends relationships when making

suggestions.

The finding that 74 percent of surveyed participants used a recognizable profile image demonstrates willingness by users for their identity to be associated with check-in locations (Lindqvist et al, 2011). In fact, to be named the mayor of a location, foursquare requires users to have a photo uploaded on their profile, decrying "no faceless mayors!" in their support FAQs. The title of mayor is a sign of even stronger venue support, as the information is made publicly available to any user that also visits the location. Achieving the title has been attributed with creating a sense of ownership and reflecting the personal identity of the mayor (Cramer et al., 2011). The role of foursquare mayor has the potential to tap into a third category of influence: authority – which states that people are more likely to trust and follow a figure of authority (Cialdini, 2007). If businesses were able to tap into a sect of niche foursquare leaders, they could leverage their check-ins as meaningful endorsements that directly influence their friends and followers.

**Geo-spatial relationships: connection between friends and location**

Several studies of LBS have found an interesting correlation between geographic space and the influence of friends, suggesting check-ins have the potential to directly impact the mobility habits of online connections.  According to research by Cho, Myers & Leskovec (2011), social relationships are responsible for 10 to 30 percent of all human movement. Analysis of check-in habits in Gowalla and Brightkite (two platforms similar in function to foursquare) found that people are more likely to visit a place that a friend or someone similar has visited in the past. There was also a correlation found showing that the further a person travels the more likely a friend influenced the movement.

Additional studies have found that the geographic relationship of LBS users differs from that of other social networks. Scellato et al. (2010) found that location-based networks tend to create a "small-world" effect, where there are lower distances between friends, called "high-node locality and geographic clustering". This makes sense as LBS are meant to inform people about physical locations, which would mean people want friends in a relatively similar geographic space to give the shared information more value. As opposed to Facebook or Twitter where the shared information often doesn't require geographic context, in an LBS like foursquare there is little significance in knowing about a location if there is no potential for a user to visit it. This small-world effect creates the potential for niche, but robust, communities centered around a specified locale.

**More than just check-ins: how tips and to-dos facilitate foursquare leaders**

Leaders and influencers are a necessary part of social structures, and within the construct of location-based networks like foursquare these leaders are measured by the impact of tips and to-dos. Tips are public comments left by people who have checked-in to offer advice, comment or review about a place. Any user can see the tips by visiting the profile of the location, and users can respond or add these tips to "to-do" lists. Vasconcelos et al. (2012) analyzed foursquare data to ascertain the levels of influence in regards to this comment system. They found that a very active and effective group of users have capitalized on these features to establish influence within the foursquare social structure.

Vasconcelos et al. found that two-thirds of all users post tips, and defined four subsets of tip posters:

1. Occasional users - post tips to only a few venues and in return
   receive few to-do/done feedback.
2. More active users - define the majority of tip posters - post more
   frequently and receive more feedback than occasional users.
3. Influential users – post large numbers of tips and receive most
   feedback – some are famous businesses and brands.
4. Spammers – users who post a large number of tips with links that
   don't necessarily relate to corresponding venues.

This discovery of specific types of influencers shows that foursquare has a hierarchy of social structure and opens the door for an average user to become an influential user if they can receive frequent traction on their tips and check-ins. Last year, foursquare added a new system for expertise badges to reward frequent check-ins around a specific topic (Bento badge for Japanese restaurants, Zoetrope badge for frequent moviegoers). This idea of expert foursquare users has been heralded by marketers as having the potential for large impact on blogs and other online influencers (Silver, 2011). The fact that a user has to physically interact with a place in order to earn this kind of expertise gives the title more real-world context, which could mean more influence for some.

Vasconcelos et al. succinctly summarize the potential in their conclusions (2012):

"Finally, it is known that the democratization of technologies like Foursquare is fundamentally changing the way people interact with each other as well as with local opinion leaders, small businesses, and online customers. Unlike other social networks, Foursquare virtual interactions may reverberate in real world. "

**Cheating and privacy concerns: barriers to widespread adoption**

The rise of LBS social networks is not without barriers, as privacy concerns and cheating potential threaten the widespread adoption by consumers and companies alike. The safety and

societal concerns about sharing location information has been documented as a main reason for users' avoidance of applications like foursquare (Gambs, Heen & Potin, 2011). Some express concern about the risk of stalking, while others don't want to be caught in the wrong place at the wrong time, like if a boss sees someone checking into an amusement park when they've called in sick to work.

When gamification elements are used and real-world rewards like discounts are on the line, the potential for cheating is always a risk. Foursquare has some measurements in place to verify location and rules regarding certain badges and mayorships, as well as systems for businesses to report or police any dishonest behavior. However, the system is far from flawless and the potential for users to take advantage of the offerings threatens the integrity of LBS as a whole (Glas, 2011). These concerns will have to continually be addressed as foursquare and other LBS social networks grow and expand. The question of social influence is inconsequential if the system as a whole fails to separate authentic usage from fraudulent activity.

## Survey of Foursquare Users

The absence of quantitative research in regards to foursquare mayors prompted the execution of a preliminary survey questionnaire to assess the role of mayorships. The results are limited and meant to establish a need for further, widespread research into this topic.

### Participants

The survey sought a convenient sample of foursquare users through the author's social media networks. 16 participants responded over a three-day period in April 2012 and indicated they had used foursquare to check in to a location. The response rate was fairly even male (7) to

female (9). The majority of respondents (8) were age 25-34, while 6 participants were 18-24, 1 participant responded under 18 and 1 responded 45-54.

**Survey format**

The survey was conducted using Google Forms and was set-up to assess three key areas: motivation of check-in, impact and usage of tips, and motivation and opinion behind mayorships. Participants were asked basic demographic information (age and sex) but were otherwise kept anonymous. If a participant indicated they did not hold a mayor title, they were excluded from the remaining mayor-related questions.

**Results**

*Location type and motivation*

The types of places checked in to by participants was evenly distributed with 100 percent of participants selecting restaurants and entertainment venues and 69 percent indicating they had checked in to personal residences and offices. The primary reason behind check-ins was more lopsided. The majority of participants (9 of 16) selected "to earn points, badges, credits and mayorships" as their primary reasons for checking in, revealing the impact of foursquare's gamification aspects in influencing use. Deals/discounts (3 of 16), location tracking (2 of 16), sharing tips (1 of 16) and seeing nearby friends (1 of 16) were other indicated motivations.
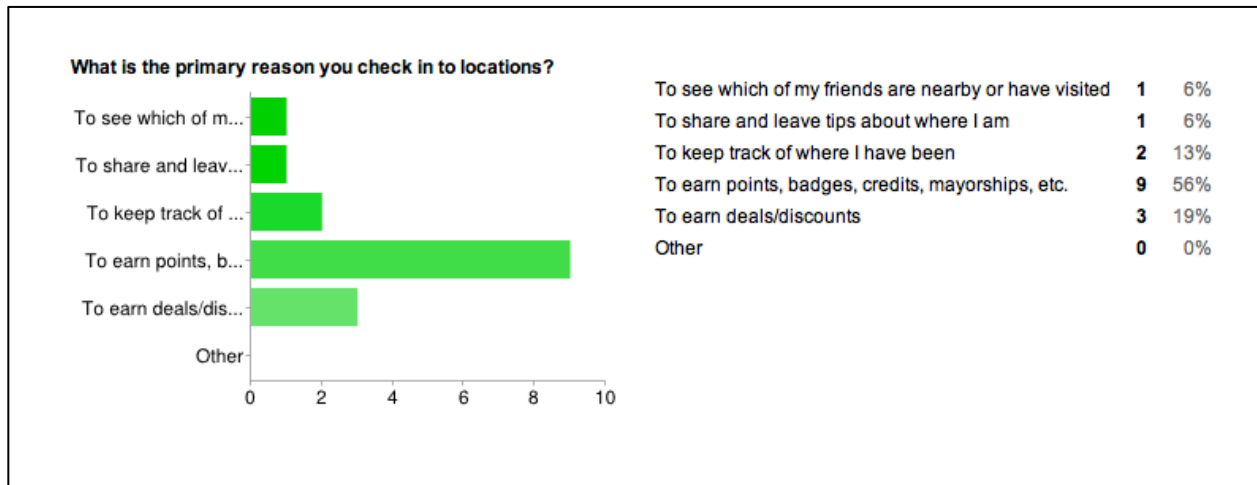
**What is the primary reason you check in to locations?**

| | | |
|---|---|---|
| To see which of my friends are nearby or have visited | 1 | 6% |
| To share and leave tips about where I am | 1 | 6% |
| To keep track of where I have been | 2 | 13% |
| To earn points, badges, credits, mayorships, etc. | 9 | 56% |
| To earn deals/discounts | 3 | 19% |
| Other | 0 | 0% |

**Figure 1** Survey results found gamification elements like badges, credits and mayorships to be a decisive motivator behind user check-ins.

*Tips and trustworthiness*

Leaving tips was not found to be a popular activity with just 38 percent of participants (6 of 16) indicating they had ever posted a tip. Those that did leave tips answered a general-response question designating strong-feelings toward a venue as the motivation behind leaving a tip. "If I particularly enjoyed the place, I leave a nice little tidbit of my experience. I want others to know that I enjoyed the place," answered one respondent. "An extremely good or bad experience at a location will get me to post a tip," said another. A third responded, "If I feel particularly strong about a product, location, etc., I leave a tip. I've only left a handful, though, so it's not a common occurrence." These responses suggest that while leaving tips may not be a frequent habit of most foursquare users, when they are left they are usually done so out of strong positive or negative reaction.

To follow this line of questioning, participants were asked to indicate their general feelings of trust in regard to foursquare tips/comments/reviews using a 5-point Likert scale.

Response was generally neutral (10 of 16); however, no respondent answered negatively. Five

people responded with a 4 out of 5 and one person gave a 5 out of 5 in trustworthiness on the

scale.

*Mayorship motivations*

The final section was only for respondents that indicated they were the mayors of a

location in foursquare. A surprising 75 percent (12 of 16) indicated they held the title. Of the 12

respondents, four said they were mayor of one location; three indicated 2-3 mayorships; two

indicated 4-6; two indicated 7-9 and one claimed 10 or more. The majority of respondents (7 of

12) named personal residence and office or place of work as places they were mayor. The

frequency of attendance likely contributed to the mayorships of these relatively mundane

locations. Restaurants and cafeteria was the next popular (5 of 12).

The motivations to become mayor were evenly spaced with slightly more respondents (4

of 12) claiming it was something that "just happened when I checked in," meaning they weren't

actively seeking the title. Competition against friend (3 of 12) was the next popular reason

followed by desire to earn a badge and identity of location as 'favorite' place (each with 2 of 12).
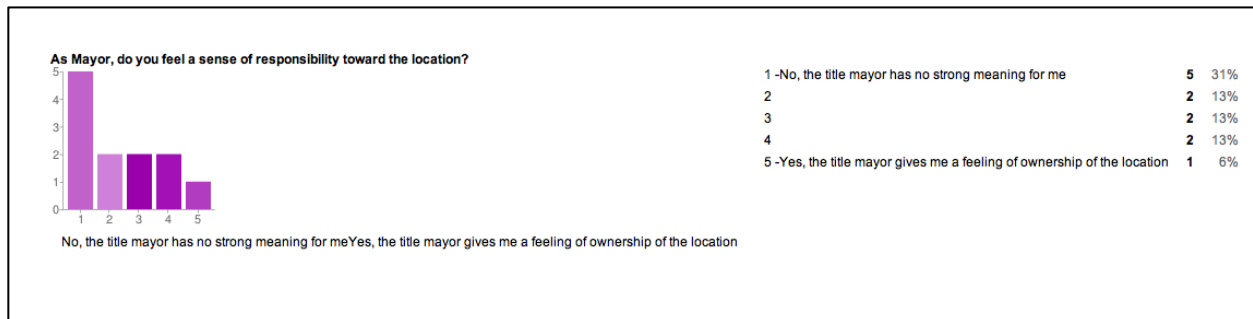


**Figure 2** The majority of respondents reported the title mayor held little to no strong
meaning.

The last question looked at whether being mayor provided users with a sense of ownership or responsibility by asking them to define meaning on a 5-point Likert scale. The majority had no strong feelings toward the title with 5 of 12 responding 1 ("No, the title mayor has no strong meaning for me"). Only three respondents indicated they had positive feelings of ownership with one of the three claiming 5 ("Yes, the title mayor gives me a feeling of ownership of the location"). There was no correlation established between whether number of mayorships affected feeling toward the title or types of place.

Mayors were asked if they had ever cheated to earn the title by checking in at false times or otherwise, and 12 of 12 respondents said they had never cheated. One participant followed up to dispute the overall idea of cheating, "I don't really think it's cheating if you leave the place and then come back even if it's a short time. And I think it's weird to call it cheating because who made up the rules? If it's okay with foursquare it's okay with me."

**Discussion**

The results of this preliminary survey revealed some interesting takeaways for future study. The role of gamification plays a larger role in LBS motivation than finding friends; however foursquare's game aspects are still largely social competing friends against each other for most points in a month or with increased points and badge opportunities if a user checks in with friends or large crowds. In this survey less than two thirds of respondents reported using the tips feature, but those that did said it indicated strong positive or negative feelings about a location. This suggests that while tips may be infrequent they are also not done frivolously, which can mean they have a certain amount of validity.

While a surprising majority of respondents held mayorships, this could be more an indicator at the kinds of respondents that would take the time to complete a survey about foursquare. The high number of mundane locations (personal residences, offices) and lack of strong ownership sense reveals that the title mayor is not enough to indicate a strong social influencer, as the impact of frequenting these kinds of locations has little external reach.

A larger sample size is necessary to outline definitive patterns in foursquare usage and mayorships. Further research should be done into the impact and trustworthiness of tips, especially in comparison to reviews on sites like Yelp. The motivations behind mayorships are another important area in need of assessment to determine the difference between 'just happened' mayors and 'sense of ownership' mayors.

**What's next for LBS**

Location-based services have the potential for a bright future as creators of social influencers and indicators of social trends. However, issues of backlash hype and market over-saturation, threaten to overshadow this potential. The role of mayor has become a farcical function of the gamification aspects of LBS rather than a sign of potential location-centric opinion leaders. Foursquare announced on April 16th (also known as "foursquare day"), that it intended to further engage business ideas and establish ways for brands to have stronger ownership and more control in creating specials and discounts (Delo, 2012).

This is a crucial step in the monetization of LBS, but brands and businesses should be sure to capitalize on the prospective leaders already at the heart of foursquare. These mayors and badge holders have the built in influence tools of social proof and liking. If brands could give them the added authority of a meaningful mayorship or other leader roles, it could establish a

vibrant class of brand advocates that have the backing of location-based information to put real-world action behind their support. It's one thing to "Like" a restaurant page on Facebook, it's quite another to back that "Like" up with a location history of visits and experiences at the restaurant.

References

Berjani, B. and Strufe, T. (2011) A recommendation system for spots in location-based online social networks. *From the proceedings of SNS'11 in Salzburg.* doi: 978-1-4503-0634-8/11/04

Cho, E., Myers, S., Leskovec, J. (2011) Friendship and mobility: user movement in location-based social networks. *From the Proceedings of KDD'11 in San Diego, California. 1082-1087.* doi:978-1-4503-0813-7/11/08

Cialdini, R. (2007). Influence: The Psychology of Persuasion. William Morrow and Company. New York, NY.

Cramer, H., Rost, M., Holmquist, L. (2011). Performing a check-in: emerging practices, norms and 'conflicts' in location-sharing using foursquare. *From the Proceedings of Mobile Human Computer Interaction 2012: International Conference in Stockholm, Sweden.* 57-66. doi:978-1-4503-0541-9/11/08-09

Delo, C. (April 19, 2012). Foursquare Eyes June for Launch of New Advertising Platform. AdAge Digital. Retrieved from http://adage.com/article/digital/foursquare-eyes-june-launch-advertising-platform/234223/

*Foursquare* (2012). About foursquare. Retrieved from https://foursquare.com/about/

Gambs, S. Heen, O., & Potin, C. (2011). A comparative privacy analysis of geosocial networks. *From the proceedings of SPRINGL'll in Chicago, Illinois.* 33-40. doi:978-1-4503-1032-1/1/11

Glas, R. (2011). Breaking reality: exploring pervasive cheating in Foursquare. *From the proceedings of DiGRA 2011 Conference: Think Design Play.*

Kessler, S. (April 16, 2012). Foursquare tops 20 million users. *Mashable.* Retrieved from http://mashable.com/2012/04/16/foursquare-20-million/

Katz, E. & Lazarsfeld, P. (1955) Personal Influence: The Part Played by People in the Flow of Mass Communications. The Free Press.

Lindqvist, J., Cranshaw, J., Wiese, J., Hong, J., Zimmerman, J. (2011). I'm the mayor of my house: examining why people use Foursquare - a social-driven location sharing application. *From the Proceedings of Computer Human Interaction Conference 2011 in Vancouver, BC.* 2409-2418. doi:978-1-4503-0267-8/11/05

Patel, K. (July 26, 2010). Forrester: why most marketers should forgo foursquare. *AdAge Digital.* Retrieved from http://adage.com/article/digital/digital-study-marketers-forgo-foursquare/145105/

*The Realtime Report* (April 20, 2012). #RLTM Scoreboard. Retrieved from http://therealtimereport.com/2012/04/20/social-networking-stats-gnip-now-tracking-90-billion-social-activities-monthly-rltm-scoreboard/

Scellato, S. (2011). Beyond the social web: the geo-social revolution. SIGWEB Newsletter. doi:10.1145/2020936.2020941

Scellato, S., Mascolo, C., Musolesi, M. & Latora, V. (June 2010).  Distance matters: geo-social metrics for online networks. *From the proceedings of WOSN'10.*

Scellato, S., Noulas, A., Lambiotte, R. & Mascolo, C. (2011). Socio-spatial properties of online location-based social networks. *Association for the Advancement of Artificial Intelligence.* Retrieved from www.aaai.org.

Scellato, S., Noulas, A., & Mascolo, C. (2011). Exploiting place features in link prediction on location-based social networks. *From the proceedings of  KDD'11 in San Diego, CA.* 1046-1054. doi:978-1-4503-0813-7/11/08

Schonfeld, E. (2011). Klout Adds Foursquare, But How Much Will It Boost My Score? *Tech Crunch*. Retrieved from http://techcrunch.com/2011/08/04/klout-adds-foursquare-but-how-much-will-it-boost-my-score/

Silver, M. (December 1, 2011). The nicheification of social influence & importance of LBS. 451 Marketing. Retrieved from http://451heat.com/2011/12/01/the-nicheification-of-social-influence-importance-of-lbs/

Tang, K., Lin, J., Hong, J., Siewiorek, D., Sadeh, N. (2010). Rethinking location sharing: exploring the implications of social-driven vs. purpose-driven location sharing. *From the Proceedings of UbiComp 2010 in Copenhagen, Denmark.* doi:978-1-60558-431-7/09/09

*Tech Crunch*. (2012). Instagram's user count now at 40 million, saw 10 million new users in last 10 days. Retrieved from http://techcrunch.com/2012/04/13/instagrams-user-count-now-at-40-million-saw-10-million-new-users-in-last-10-days/

Treadaway, C. (May 26, 2010). Are location-based services all hype? Mashable. Retrieved from http://mashable.com/2010/05/26/location-hype/

Tussyadiah, l. (2011) Territoriality and Consumption Behavior with Location-Based Media. *From the Proceedings of Information and Communication Technologies in Tourism 2012: International Conference in Helsingborg, Sweden.* 150-165.

Van Grove, J. (July 25, 2009) Foursquare: why it may be the next twitter. *Mashable.* Retrieved from http://mashable.com/2009/07/25/foursquare-app/

Vasconcelos, M., Ricci, S., Almeida, J., Benevenuto, F. & Almeida, V. (2012). Tips, dones and todos: uncovering user profiles in foursquare. *From the Proceedings of the Ffth ACM International Conference on Web search and Data Mining.* 653-662.

Xu, Q., Erman, J., Gerber, A., Mao, Z., Pang, J., & Venkataraman, S. (2011). Identifying diverse usage behavior of smartphone apps. From the proceedings of IMC'11. 329-344. doi:978-1-4503-1013-0/11/11

Zickhur, K. & Smith, A. (September 6, 2011). 28% of American adults use mobile and social location-based services. Pew Research Center. Retrieved from http://pewinternet.org/Reports/2011/Location.aspx