



Getting engaged: Facebook and the fire service



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 - Oklahoma State University, Stillwater, OK
- **Film / TV / Media Production**
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- **Firefighter / EMT / Social Media Specialist**
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- **Social Media Director**
 - Professional Firefighters Association of NJ, IAFF, NJ AFL-CIO

Social media during crises



- **Collaboration and coordination tools**
 - Listening to & managing stakeholder needs & expectations
 - Increasing situational awareness
 - Organizing & empowering citizens as force multipliers

Social media during crises

- 2010 Haiti earthquake. (Keim and Noji, 2011)
- 2011 Japan earthquake & tsunami. (Hjorth and Kim, 2011)
- 2011 Joplin, MO tornado outbreak
- 2011 Virginia earthquake. (Houston et al., 2014)
- 2011 Queensland floods. (McLean and Power, 2013)
- 2012 Hurricane Sandy. (Hughes et al., 2014)



Why Facebook?



- **Largest social media application in world.**
 - 2+ billion monthly users.
 - 1.32+ billion daily users. (Constine, 2017)
- **More than 66% users visit daily.**

(Constine, 2017)

 - Nearly 40% visit multiple times a day.
(Bonson, Royo, and Ratkai, 2014)
- **67% American adults use Facebook.**

(Gottfried and Shearer, 2016)

Challenges for Fire Service



- **Facebook itself.**
 - Content showing algorithms - secretive and changing. (van Dijck and Powell, 2013)
 - Not all posts will be seen by all followers. (Bucher, 2012; Taylor, 2011)
 - Content needs to generate user interactivity to be seen. (De Vries, Gensler, and Leeflan, 2012; Parsons, 2013)
 - Likes.
 - Comments.
 - Shares.

Challenges for Fire Service



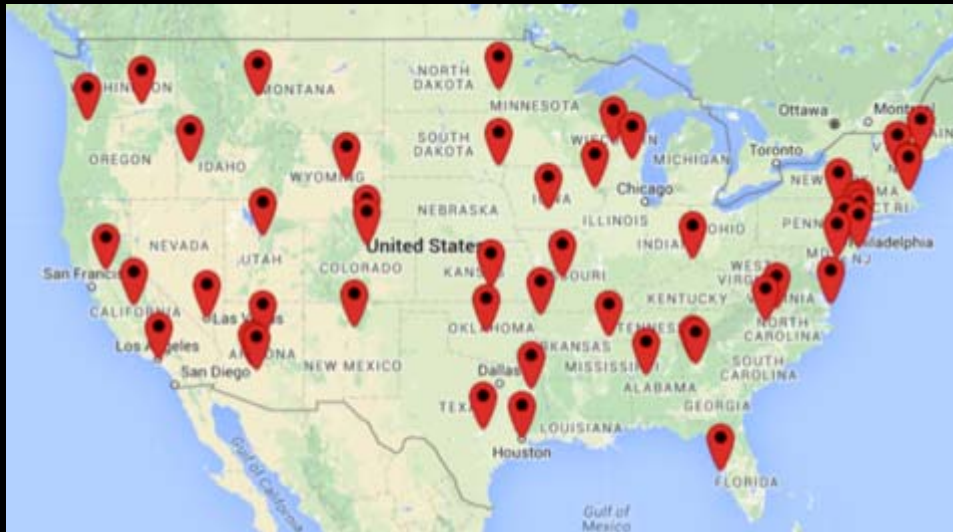
- **Overcoming command and control tradition.**
(Dufty, 2013; Boivard, 2007)
- **Facebook a “communication channel.”** (Murphy, 2013)
- **Engaging stakeholders on a day-to-day basis.**
(Bortree and Seltzer, 2009; Waters et al., 2009; Waters et al., 2011; Bonson, Royo, and Ratkai, 2015)
- **“Social media fatigue.”** (Brightt, 2015)

Challenges for Fire Service



- **Differences in local staffing/resources & populations.** (Wardell and Su, 2011; Hughes et al., 2014)
- **Changing scope – fires down but responses up.** (Everts, 2011)
- **Guidance remains limited for day to day use.**
(Sheil, Violanti, and Slusarski, 2011)
 - Watching peers.
 - Trial by error. (Mergel, 2013; Latonero and Shklovski, 2010)

Sampling



- **50 fire departments from around USA.**
 - 35 states represented.
 - Pops. Served 8 million+ to fewer than 500.
- **Each post logged & coded for 1 month.**
 - December 2014.
 - 1142 total posts.

Coding



- ***Likes, comments, & shares*** for each post logged.
- **Posts sorted by content type:**
 - *Disclosure*
 - History, fire department life, activity recaps
 - *Information*
 - General information, public service announcements, situational awareness
 - *Involvement*
 - Physical involvement, virtual involvement, general engagement

Coding



- **Additional independent variables:**
 - *Shares from other Facebook pages.*
 - *Links to other web pages.*
 - *Day and Time of original post.*
 - *Includes videos or images.*

Coding



- **20% of posts randomly selected for inter-coder reliability.**
 - 3 additional reviewers trained.
 - 93.54% average pairwise agreement.
 - Krippendorff Alpha (nominal) score .899.

Analytical Methods



- **Analysis of variance (ANOVA)**
 - Three or more independent variable groups.
 - Levene's Test.
 - Welch & Brown-Forsythe robust tests of equality of means.
 - Tests equal population means when we don't have equal population variances.
- **T-Test**
 - Two independent variable groups.
 - Levene's Test.

Research Questions



- **RQ1:** Is there a difference among Facebook users' online interaction with fire departments' *disclosure, information, and involvement* posts?

Research Questions



- **RQ2.1:** Is there a difference among Facebook users' online interaction with fire departments' *disclosure* post subcategories (*history, fire department life, activity recaps*)?
- **RQ2.2:** Is there a difference among Facebook users' online interaction with fire departments' *information* post subcategories (*general information, public service announcements, situational awareness*)?
- **RQ2.3:** Is there a difference among Facebook users' online interaction with fire departments' *involvement* post subcategories (*physical involvement, virtual involvement, general engagement*)?

Research Questions



- **RQ3.1:** Is there a difference among Facebook users' online interaction with fire departments' posts based on whether they include *shares from other Facebook pages*?
- **RQ3.2:** Is there a difference among Facebook users' online interaction with fire departments' posts based on whether they include *links to other web pages*?

Research Questions



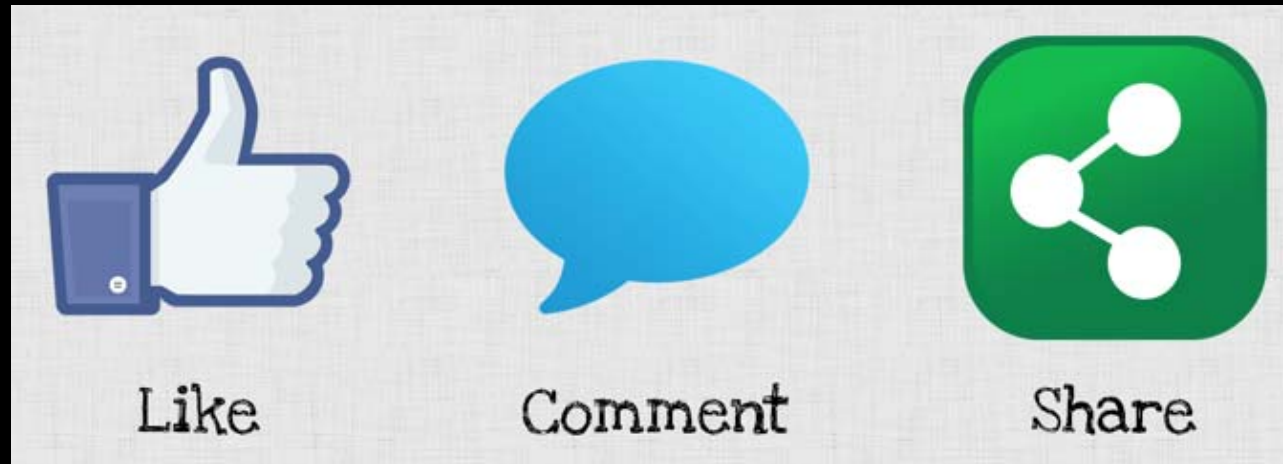
- **RQ4.1:** Is there a difference among Facebook users' online interaction with fire departments' posts based on the *day* they are made?
- **RQ4.2:** Is there a difference among Facebook users' online interaction with fire departments' posts based on the *time* they are made?

Research Questions



- **RQ5.1:** Is there a difference among Facebook users' online interaction with fire departments' posts that include *videos*?
- **RQ5.2:** Is there a difference among Facebook users' online interaction with fire departments' posts that contain *images*?

Results



- **1142 total posts examined.**
- **97.37% received at least one like, comment, or share.**
 - 97.19% with at least one like.
 - 48.51% with at least one share.
 - 46.32% with at least one comment.

Results

VARIABLE	LIKES	COMMENTS	SHARES
Main Content Categories			
• Disclosure	252.67	6.7	-
• Information	21.84	.69	-
• Involvement	99.13	5.21	-
Information subcategories			
• General information	31.37	-	-
• Public Service Announcements	19.89	-	-
• Situational Awareness	13.60	-	-
Includes share from other page	33.94	.81	-
No share from other page	153.56	4.80	-
Includes image	184.53	5.43	-
No image	37.76	1.77	-

Results

- RQ1: Is there a difference among Facebook users' online interaction with fire departments' *disclosure*, *information*, and *involvement* posts?

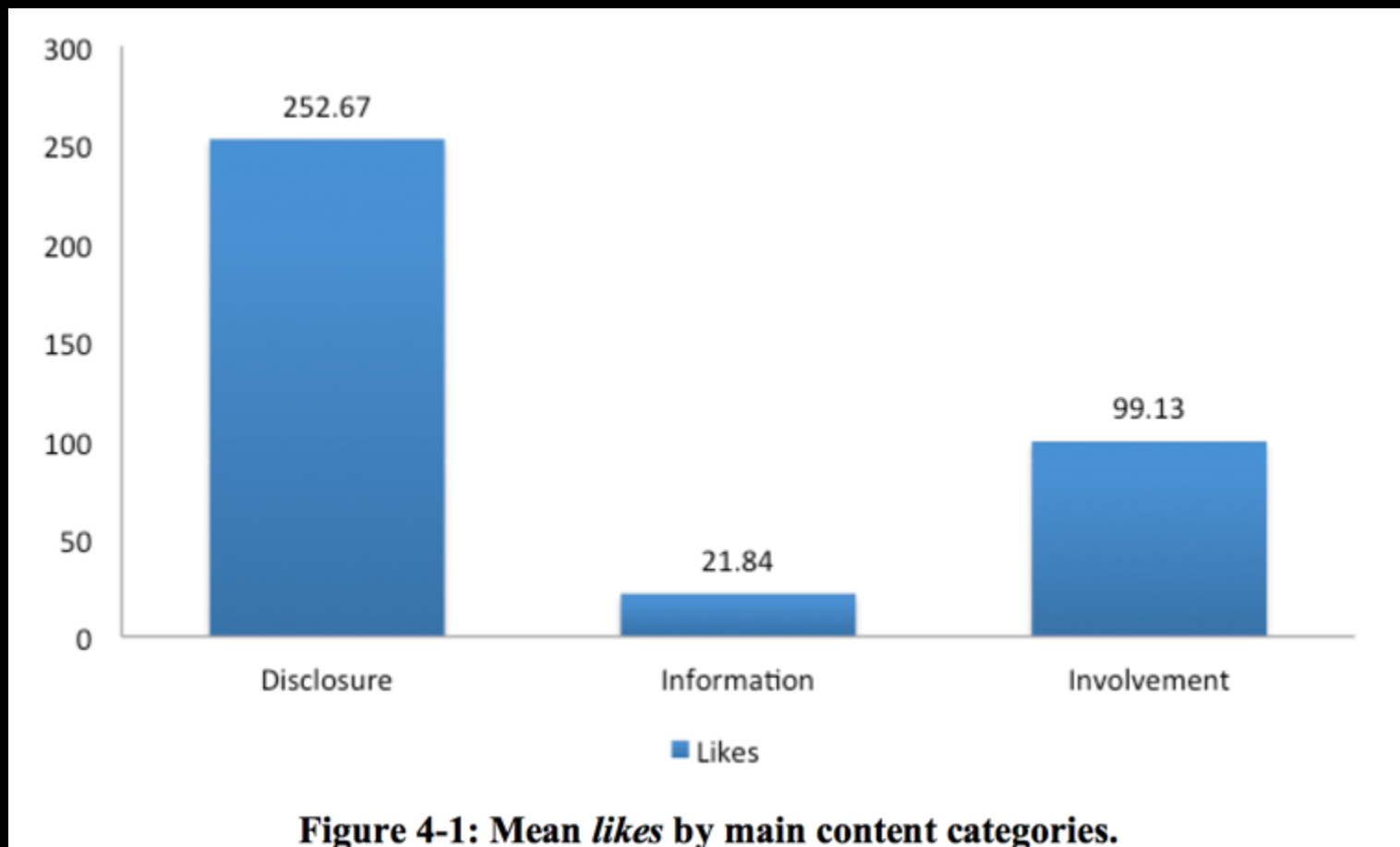


Figure 4-1: Mean *likes* by main content categories.

Results

- RQ1: Is there a difference among Facebook users' online interaction with fire departments' *disclosure*, *information*, and *involvement* posts?

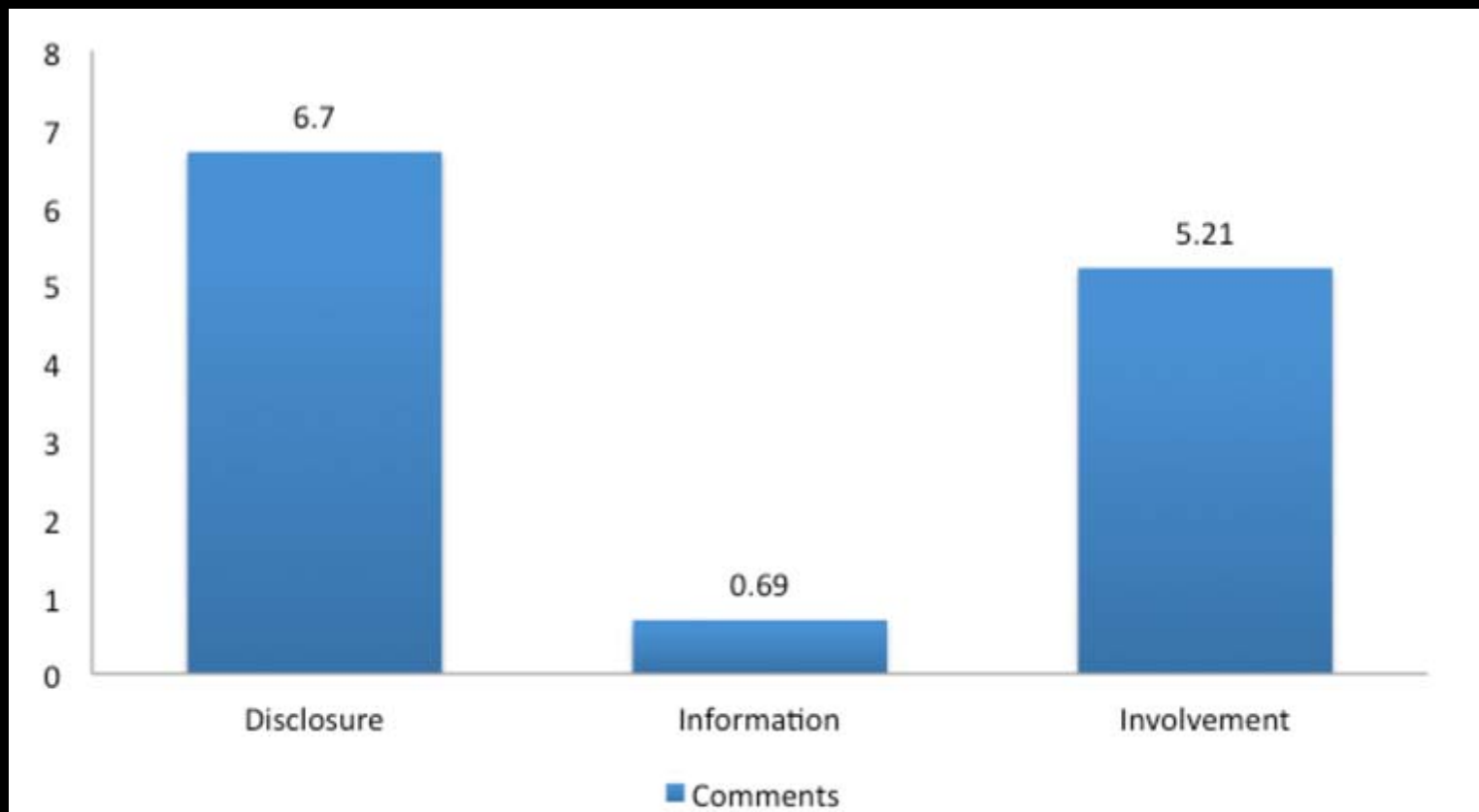
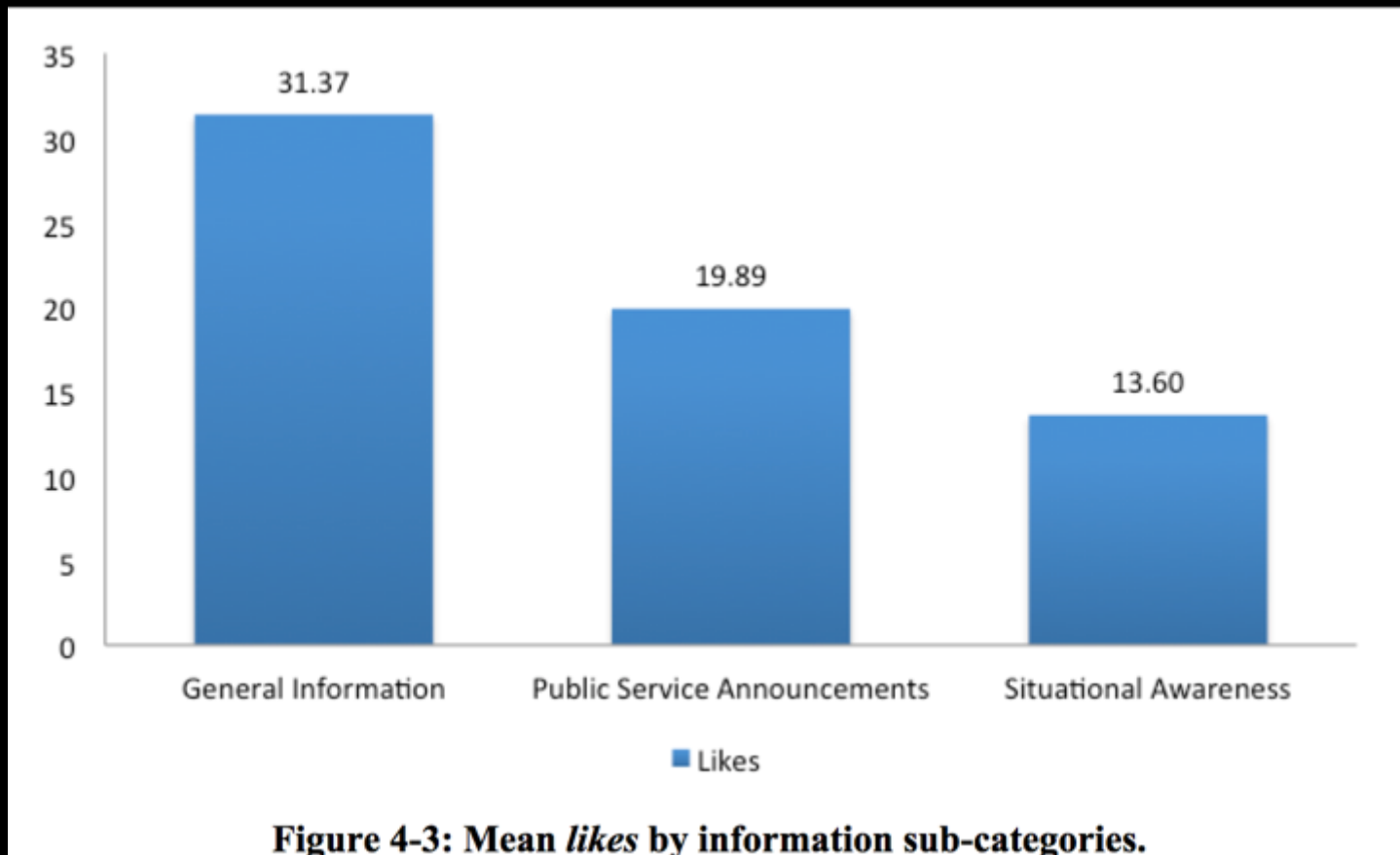


Figure 4-2: Mean *comments* by main content categories.

Results

- RQ2.2: Is there a difference among Facebook users' online interaction with fire departments' *information* post sub-categories (*general information, public service announcements, situational awareness*)?



Results

- RQ3.1: Is there a difference among Facebook users' online interaction with fire departments' posts based on whether they include *shares from other Facebook pages*?

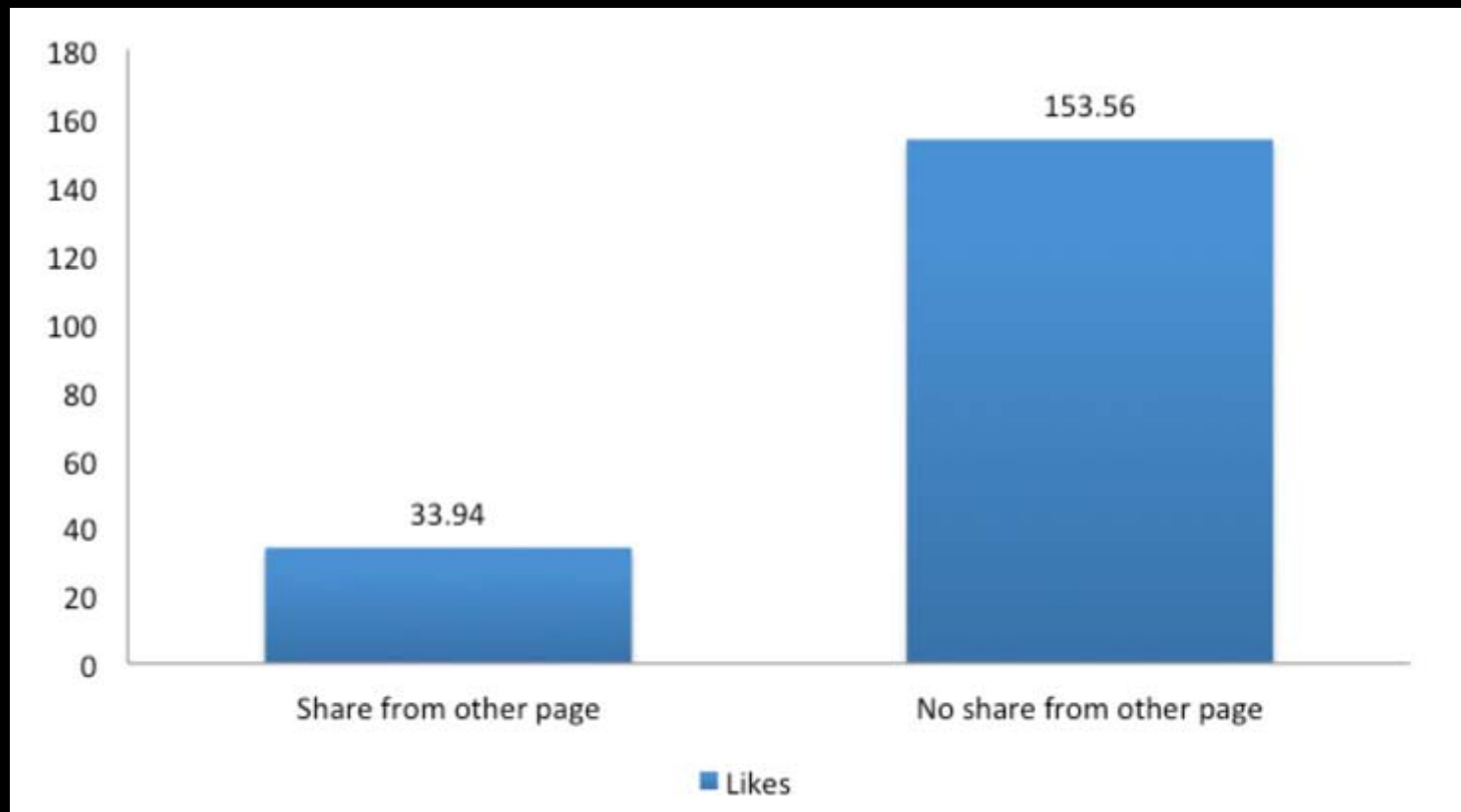


Figure 4-4: Mean *likes* for content containing *shares from other Facebook pages*.

Results

- RQ3.1: Is there a difference among Facebook users' online interaction with fire departments' posts based on whether they include *shares from other Facebook pages*?

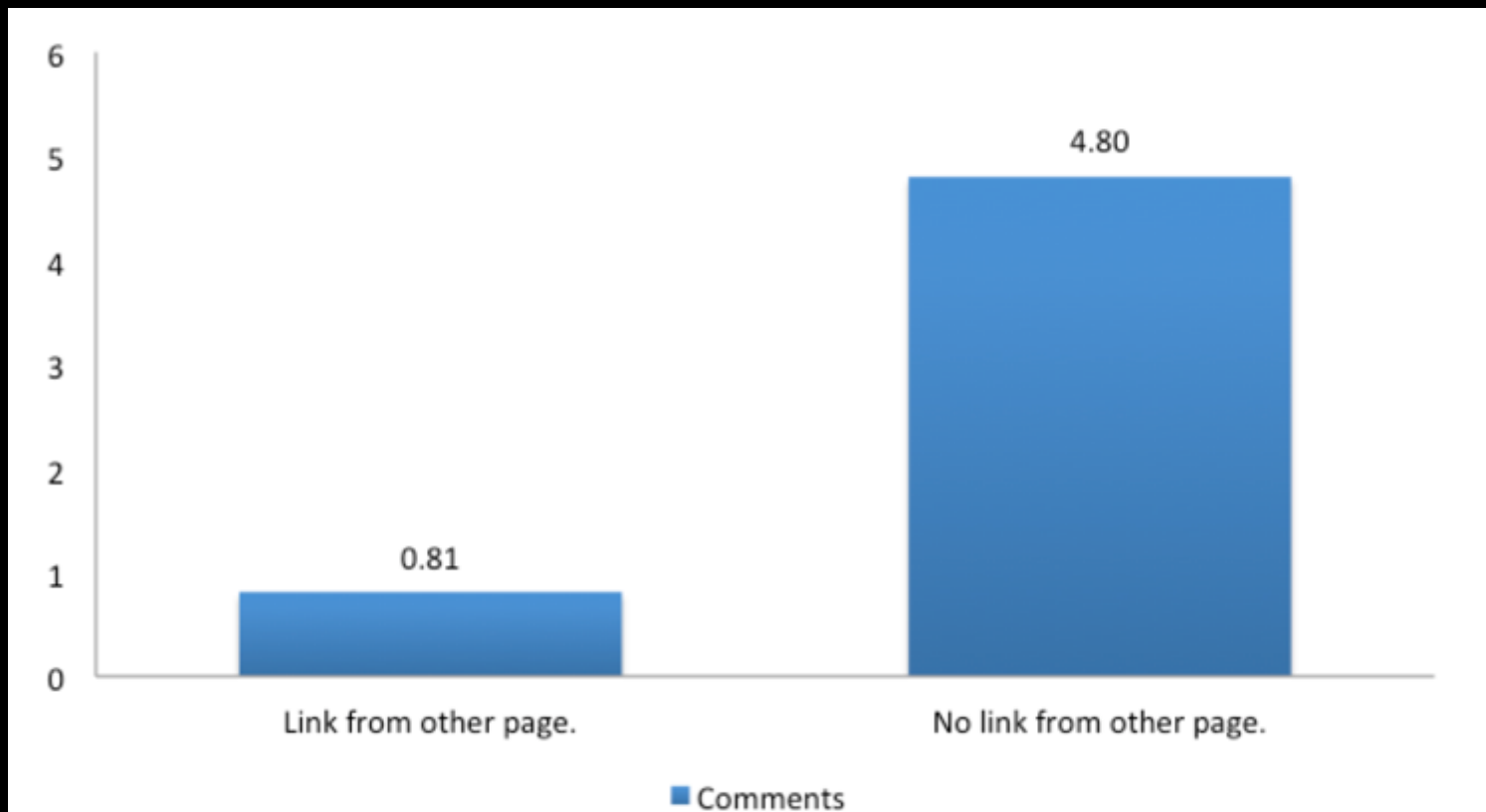


Figure 4-5: Mean *comments* for content having *shares from other Facebook pages*.

Results

- RQ4.2: Is there a difference among Facebook users' online interaction with fire departments' posts based on the *time* they are made?

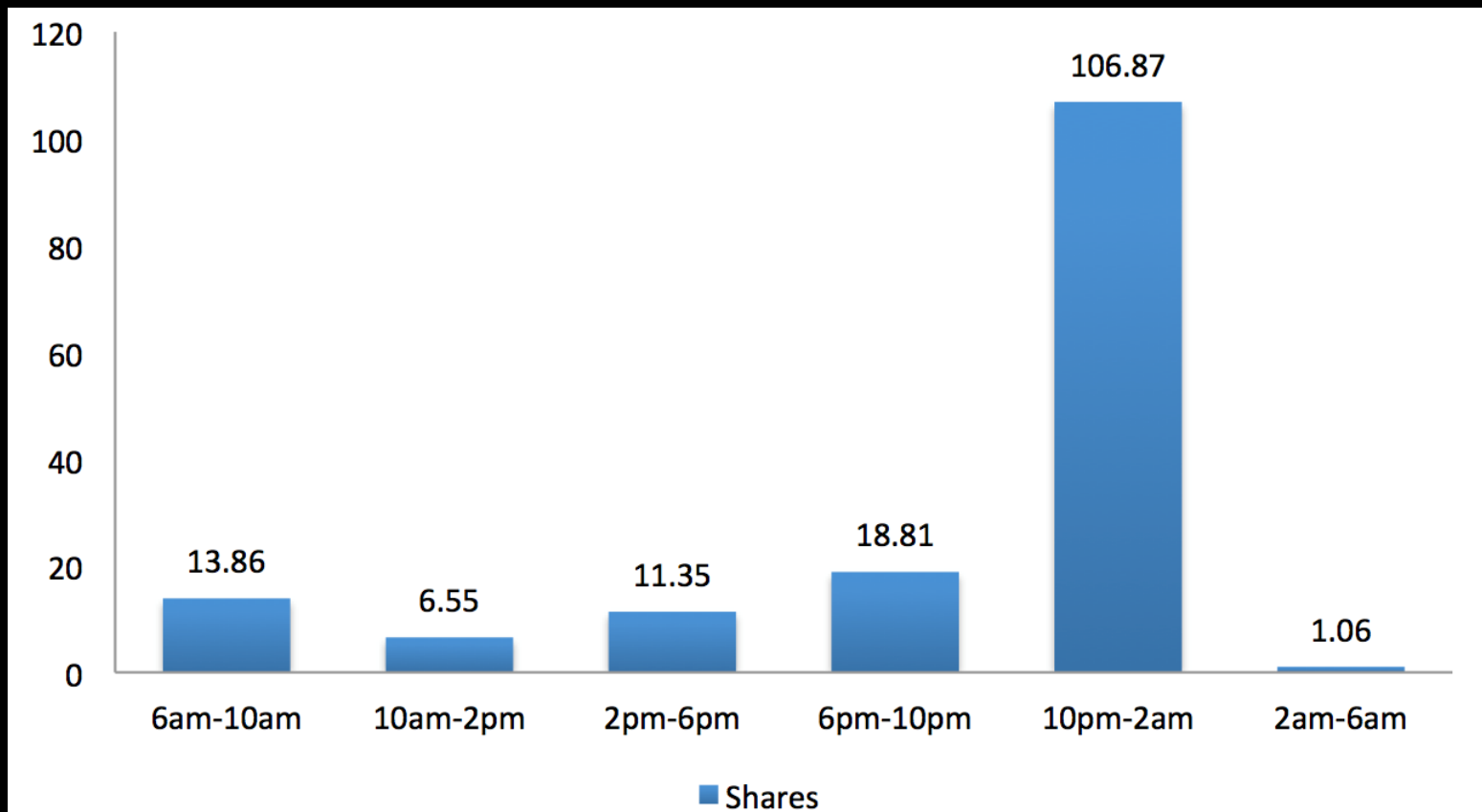
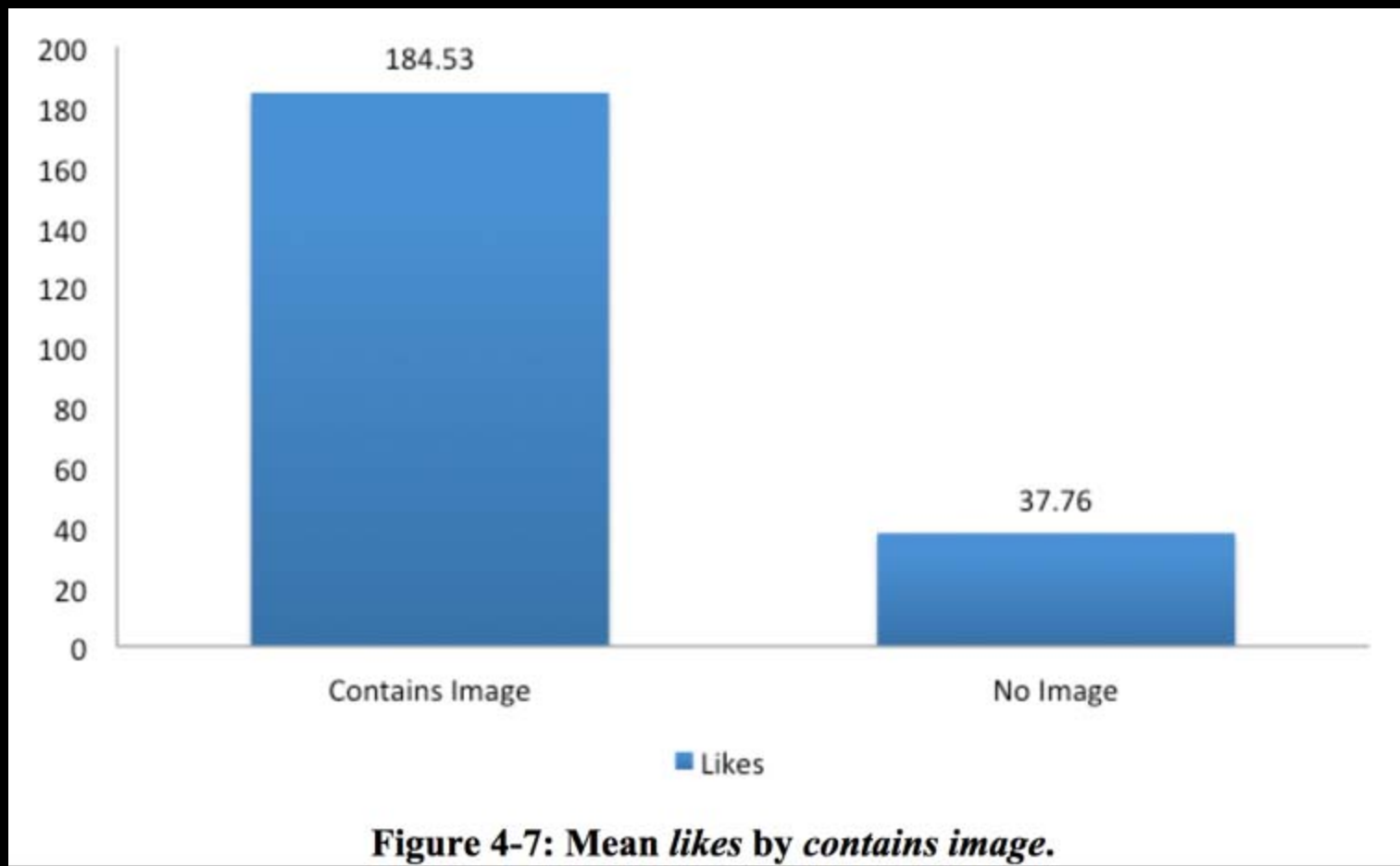


Figure 4-6: Mean *shares* by *time* of post.

Results

- RQ5.2: Is there a difference among Facebook users' online interaction with fire departments' posts that contain *images*?



Results

- RQ5.2: Is there a difference among Facebook users' online interaction with fire departments' posts that contain *images*?

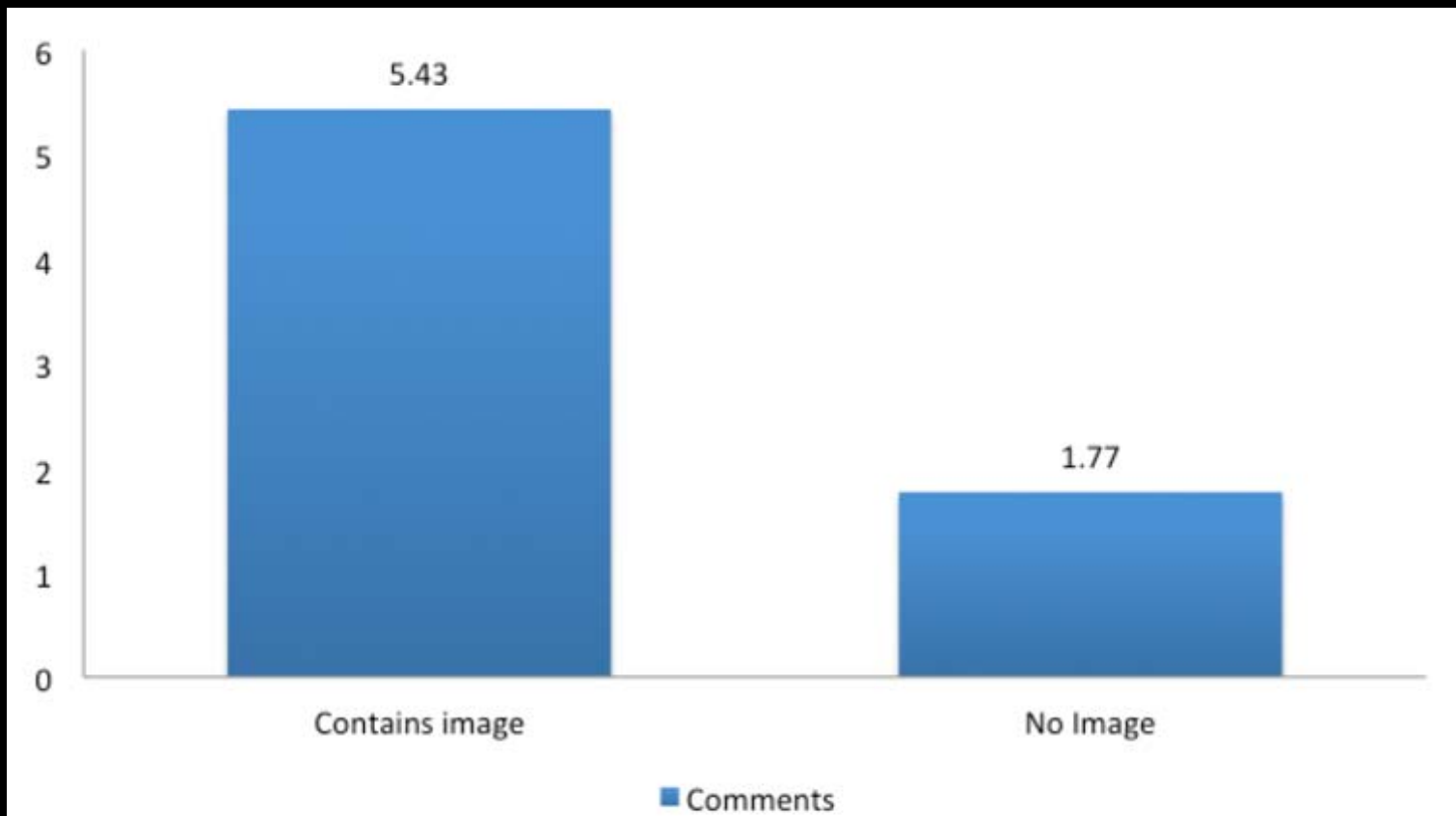


Figure 4-8: Mean *comments* by *contains image*.

Discussion & Conclusion



- *Disclosure* content most engaged.
- *Information* least engaged.
- Posts *shared from other Facebook pages* or having *links to other web pages* engaged less than posts not having these.
- Posts made late at night, *10pm-2am*, significant *shares*.
- *Images* led to more *likes* and *comments*.

Discussion & Conclusion



- FB used for quick, frequent interactions.
- Fire service a local resource – content needs to connect locally.
- Engagement requires interesting & entertaining content - lazy content gets lazy results.
- Images lead to engagement.

Discussion & Conclusion



- **Limitations / Future Studies**
 - Sample size.
 - Period of time studied.
 - Differences in sizes of cities studied.
 - Facebook constantly changing internal mechanisms.
 - Look at growing use of video.

Discussion & Conclusion



- **Applications**

- Better understanding how FDs use Facebook and what content engages followers.
- Applying these concepts to other social media tools.
- Applying these concepts to other public outreach efforts.



Los Angeles FD
@LosAngelesFireDepartment



Boston Fire Department
@BostonFireDepartment



Surf City
Volunteer Fire
Company
@surfcityfire49



Getting engaged: Facebook and the fire service



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