Innovating Gang Violence Prevention with Social Media Analysis

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Context matters

Chicago Firearm Violence (2016)

↑ 58%  
In Homicides

4,368  
Shooting Victims

Youth on Social Media

92% of teens are online daily

83% of 13-17-year-olds use one or more social networking site

88% have access to mobile phones

73% to smartphones

(Lenhart, 2015)
“The popularity of social media has created a new context for Trauma and violence that is grossly understudied and used in social work practice.”
Jst Brought A Crate Of Guns I'm on my way Thru Lamron shoot u n Whoeva nxt 2 u Nigga dats a And1

I Guess u niggaz won't get da picture until 1 of y'all ass get put in da frame 🙌 tàinteropRequireDaFrame 😙 😏

Fuck Da Whole Cottage Grove 67th-60th 😈

Da Oppz didn't take u but we need bro ima Fuck Ova da Oppz fo u 😞 🙌 😏
Chicago’s Gun-Toting Gang Girl: ‘Lil Snoop’

She was just 17, a charter school graduate. But little Gakirah Barnes was also purported to have killed two in tit-for-tat gang violence now being celebrated by the recording industry.

- Recently deceased gang member in Chicago
- 9 killings to her name until she was killed at the age of 17
- 27,000 tweets from December 2011 to April 11, 2014
- ~ 4,200 followers on Twitter
DUVAA: A Social Media Qualitative Analysis Process
Providing Contextual Input to Computational System
<table>
<thead>
<tr>
<th>Tweet</th>
<th>Label</th>
<th>Youth Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>If We see a opp Fuck it We Gne smoke em 😁</td>
<td>Aggression</td>
<td>he mean like if he see opp he go kill him opp mean like the people he dont like</td>
</tr>
<tr>
<td>Dnt get caught on Dat 800 block lame ass Lil niggas Betta take Dat Shyt on stony spot</td>
<td>Aggression (Insult)</td>
<td>he saying them lil nigga better not get caught on the 800 block or they go kill them so he tell them if they wanna live they better stay on stony</td>
</tr>
<tr>
<td>Young niggas still getting shot babies still dying 🙏</td>
<td>Loss</td>
<td>he mean like teen keep die and babys and kid keep die</td>
</tr>
</tbody>
</table>

Figure 1: Tweets and a Chicago youth’s interpretation of them.
Qualitative Findings
Aggression

NO SURRENDER LIL B
@TyquanAssassin
If u lil niggas cross dem tracks it's on 🤙

RETTWEETS 4  LIKES 2
1:02 PM - 22 Mar 2014

NO SURRENDER LIL B
@TyquanAssassin
Shoot a Nigga Frm Point blank Range n Da Back of Da Head 🤙

RETTWEETS 13  LIKES 7
10:17 PM - 23 Mar 2014

NO SURRENDER LIL B
@TyquanAssassin
Police took my homie I dedicate my life 2 his revenge 🎩

RETTWEETS 59  LIKES 30
11:38 AM - 10 Apr 2014

NO SURRENDER LIL B
@TyquanAssassin
Fuck Da Whole O'block put everybody n Dat Project on a Shirt 🎩

RETTWEETS 9  LIKES 9
9:57 AM - 20 Mar 2014
Loss → Aggression

NO SURRENDER LIL B
@TyquanAssassin

Datz my blood 🎈🐷🚗 left my nigga n cold blood 😞🙏

RETWEETS 1
LIKES 4

10:53 AM - 7 Apr 2014

NO SURRENDER LIL B
@TyquanAssassin

Da Oppz didn't take u but we need 🎈💉-caret bro ima Fuck Ova da Oppz fo u 😞🙏💯👑 Lil B

RETWEETS 16
LIKES 14

11:02 AM - 7 Apr 2014
Permanence of Online Communication

**Same Day**

**Rip 👑 Lil B**

@TyquanAssassin

8:13 AM - 6 Apr 2014

RETWEETS 6  LIKE 1

NO SURRENDER LIL B

@TyquanAssassin

O'block been Dead like Keta 😒➡️➡️➡️➡️ 😒

4:30 PM - 6 Apr 2014

RETWEETS 89  LIKE 46


**After Her Death**

**NO SURRENDER LIL B**

@TyquanAssassin

8 Apr 2014

O’block been Dead like Keta 😒➡️➡️➡️➡️ 😒

8  RETWEETS 89  LIKE 46

**Haitian boy**

@Haitian_Boy1804

@TyquanAssassin lol now u dead lil bitch

7:29 AM - 11 Dec 2014

LIKES 2

ps4: MikeTheGammer 🌟

@MikeTheGSWFan

2 Oct 2015

@Haitian_Boy1804 @TyquanAssassin don’t Disrespect bro I’ll Shoot That’s My Cuz Watch Yo Mouth Or I’ll Get My Shtooaz @FBG_DUCK

Reply to @Haitian_Boy1804 @TyquanAssassin
Data Science: NLP development

Labeled Social Media Data
From DUVAA

Machine Learning
Supervised, Semi-Supervised, and Unsupervised

Computational System
Feature Extraction
Learned Model

New Unlabeled Social Media Content
Using Data Science for Social Good

Predictions used by community outreach to prevent, diffuse, and intervene in gang violence

Social Science → Data Science

Essential Collaboration
Questions?

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