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Social media fandom for health promotion? Insights from *East Los High*, a transmedia edutainment initiative

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ABSTRACT

As digital media technologies proliferate and social media spaces expand, how does one leverage popularity and cultivate fandom to promote health? Despite the easy entry, broad reach, and interactive features of social media such as Facebook and Twitter, health promoters are unsure how to meaningfully engage users and build lasting online communities. In this article, we examined the Facebook Insights and Twitter hashtag network over a nine-month period for Season 1 of the exemplary transmedia edutainment show *East Los High*. Premiered on Hulu, the popular entertainment streaming site, *East Los High* was purposefully designed to serve Latino youths in the United States, spurring conversations and promoting healthy relationships and safe sex practices across different digital platforms. We used Facebook analytics to gauge the audience reach, engagement, and dissemination; developed a 10-indicator index to identify the most successful among the 352 Facebook posts; analysed the position of *East Los High* in the Facebook co-commenting network; and assessed the top word pairs from those Facebook comments in accordance with the show's social objectives. We also studied the underlying structure of the Twitter hashtag network representing the interactions between @EastLosHighShow and its 2,136 followers with tweets that included #ELH, #ELHaddict(s), and/or #EastLosHigh. While challenges exist in initiating and maintaining user engagement on these social media platforms, our findings revealed effective and actionable strategies for health promotion by cultivating fandom and building communities on social media.

Keywords: ***health promotion, fandom, transmedia, edutainment, social media, Facebook, Twitter, East Los High***

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INTRODUCTION

Social media has become an increasingly popular communication platform in the past decade, intimately interwoven into people's everyday life. Facebook surpassed one billion monthly active users in late 2012 and Twitter has maintained 200-300 million monthly active users since 2013 ("Number of ", 2016). Their services are free, accessible, and provide almost instant feedback with connection to hundreds, thousands, or even millions of people. Given the easy entry, broad reach, and interactive features of social media, individuals turn to these outlets for health information and social support (Fox, 2014) and organisations are increasingly using these platforms for health promotion (Harris, Mueller, & Snider, 2013; Moorhead et al., 2013; Thackeray, Neiger, Hanson, & McKenzie, 2008) including minority and marginalized groups (e.g., Pedrana et al., 2013; Vyas, Landry, Schnider, Rojas, & Wood, 2012).

We contribute to this ever-expanding literature by focusing on the role of social media in the building of online communities around the fandom of a popular transmedia edutainment initiative, *East Los High*. Unlike the traditional approaches of health organisations disseminating information over the mass media or others implementing a health intervention entirely on social media, the producers of *East Los High* leveraged the power of storytelling across multiple communication platforms to facilitate health education, challenge social norms, and promote behaviour change—a strategy known as transmedia edutainment (see Wang & Singhal, 2016 for details). Across five seasons from 2013 to 2017, *East Los High* featured a wide range of sexual and reproductive health issues from healthy relationships, teen pregnancy prevention, and contraceptive choices to reproductive rights, domestic violence, and sexual identity. The transmedia edutainment initiative earned numerous accolades such as the Cannes Lions Award and six Emmy nominations, including recognition for its outstanding new approach to the production of a drama series.

East Los High premiered in June 2013 on the popular online entertainment streaming site Hulu. Its writers and producers were devoted to creating gritty and meaningful stories about and for underserved and underrepresented audiences such as Latino youth growing up in the United States. The dramatic storylines centered around a fictional high school in East Los Angeles (hence, *East Los High*). Specifically, Season 1 focused on educational themes of teenage sexuality, safe sex practices, and women's reproductive rights.[i] Creatively crafted, it drove the audience from watching the 24 episodes of *East Los High* on Hulu to explore additional content on the show's website through several transmedia extensions—e.g., extended scenes, a school newspaper, a pregnant teen character's vlogs, healthy food recipes, dance tutorials, and widgets to connect Latino youth to local counselling and health clinics. Its audience engagement was further amplified on social media. A description of *East Los High*, its attributes as a transmedia edutainment initiative, and the results of its program evaluation in terms of audience reach, engagement, and impact on health-related outcomes are detailed elsewhere (Sachdev & Singhal, 2015; Wang & Singhal, 2016).

In this article, within the container of *East Los High*, we investigated the role that social media platforms like Facebook and Twitter played to engage users and to build sustainable communities around healthy lifestyles. We begin with a review of literature on social media and health promotion, identifying research gaps and making a case for why it is important to understand the complexities and dynamics associated with digital footprints. We then discuss our objectives, analytical methods, results, and conclusions on our study of *East Los High's* Season 1 Facebook fan page and Twitter hashtag network. We conclude by detailing the lessons learned and discussing the theoretical, methodological, and practical implications of building social media fandom for health promotion.

SOCIAL MEDIA AND HEALTH PROMOTION

Social media may be the new frontier for health promotion. In 2014, over 1,500 health organisations in the United States maintained more than 6,500 social media accounts (Mayo Clinic, 2014). Families leverage their personal networks on Facebook to seek help with urgent health conditions (Hernandez, 2013) and some 1.5 billion tweets were sent in a five-year period (2010 onwards) that addressed tens of thousands of health topics (Healthcare Hashtag Project, 2016). The scale of these online activities offers just a glimpse into the potential of social media in enhancing health promotion.

Compared to traditional mass media communication channels, social media has at least three advantages: First, content creation online is at no or low cost, thus, reduces the barrier to entry; second, most popular social media platforms have at least a few million monthly active users, allowing organisations to reach a much broader audience at their fingertips; and third, the interactive features enhanced in social media applications can facilitate dialogues and support word-of-mouth diffusion through online social networks (Eysenbach, 2008; Grajales III, Sheps, Ho, Novak-Lauscher, & Eysenbach, 2014).

Despite these advantages, organisations still face numerous challenges in using social media for health promotion. Because of the low barrier to entry, organisations may compete for audience attention with biased sources lacking health expertise (Syed-Abdul et al., 2013; Xu, Chiu, Chen & Mukherjee, 2014). Further, internet users face information overload and have short attention spans for online information (Goldhaber, 1997). The power law in internet dictates that only a small percentage of online content results in real influence on people (Shirky, 2003). Research also documents the problem of *slacktivism* in that many users are slackers who have very shallow online participation (Christensen, 2011).

To overcome these challenges, health organisations and initiatives must create not only attention-driving content, but also a sustainable online community of fans and evangelists, who are connected by shared concerns and frequent interactions on a given topic (Wang & Singhal, 2018). Social media communication connects strangers to form a topic-based imagined community (Gruzd, Wellman, & Takhteyev, 2011), affords a space to cultivate fandom around popular entertainment programmes (Jenkins, 2006), and offers a common language such as Twitter hashtags as the basis for building communities (Xu et al., 2014). There is a growing body of research that links social media to health outcomes (Korda & Itani, 2013; Moorhead et al., 2013). These efforts are largely framed around the type of information that is produced by health organisations (Lee, DeCamp, Dredze, Chisolm, & Berger, 2014; Neiger, Thackeray, Burton, Thackeray, & Reese, 2013). Few studies have looked at health-related communities formed on social media platforms (Gruzd & Haythornthwaite, 2013; Xu et al., 2014). This line of investigation is important because it addresses the community infrastructure which facilitates the health message diffusion. To our knowledge, no studies to date have focused on leveraging transmedia edutainment for health promotion through the notion of social media fandom. In this article, we investigate the Facebook and Twitter participation of users for the transmedia edutainment programme *East Los High* to better understand the underlying social network structures and patterns of communication.

EAST LOS HIGH FACEBOOK FAN PAGE ANALYSIS

Objectives

This study aimed to (1) evaluate the overall user activities on the *East Los High* Facebook fan page around Season 1, (2) identify attributes of successful posts that elicited the most user responses, and (3) assess the quality of interactions between *East Los High* and its fans on Facebook.

Methods

Data from May 1, 2013 to January 31, 2014 were extracted from the *East Los High* Facebook fan page using Facebook Insights and custom Python code. For objective 1, social media analytics were exported and processed in MS Excel. For objective 2, the most successful posts were selected based on an index of 10 indicators specified in Table 1. For objective 3, user interaction network data were retrieved and analysed using NodeXL.

Table 1. Indicators for evaluating successful Facebook posts

Label	Definition
1. Like	The total number of likes of this post
2. Share	The total number of shares of this post
3. Comment	The total number of comments of this post
4. Lifetime total reach	The total number of unique users who saw this post
5. Lifetime engagement	The total number of unique users who clicked on this post
6. Lifetime consumption	The total number of interactions with this post
7. Content cycle	The number of days between original posting and the last time any interaction with this post took place
8. Daily reach	The average number of unique users who saw this post divided by the content cycle
9. Daily engagement	The average number of unique users who clicked on this post divided by the content cycle
10. Daily consumption	The average number of interactions with this post divided by the content cycle

Note. Indicators 1–3 are visible to the public and the most common measures. Indicators 4–7 can be obtained from the Facebook Insights API. Indicators 8-10 can be manually calculated to account for the life cycle of each post. Together, they provide a more comprehensive evaluation on the effectiveness of Facebook posts.

Results

Overall, *East Los High* accumulated 6,459 page likes on Facebook in the nine-month period. There was a total of 352 posts, with a daily average of 1.3. They included six types of messages: photos (53%), links (23%), videos (12%), status updates (10%), questions (1%), and shares (1%). Figure 1 shows page-level likes, monthly reach, and monthly engagement. The general trends are similar with the traffic peaking around the season premier and tapering off in the subsequent months before it leads into a new season.

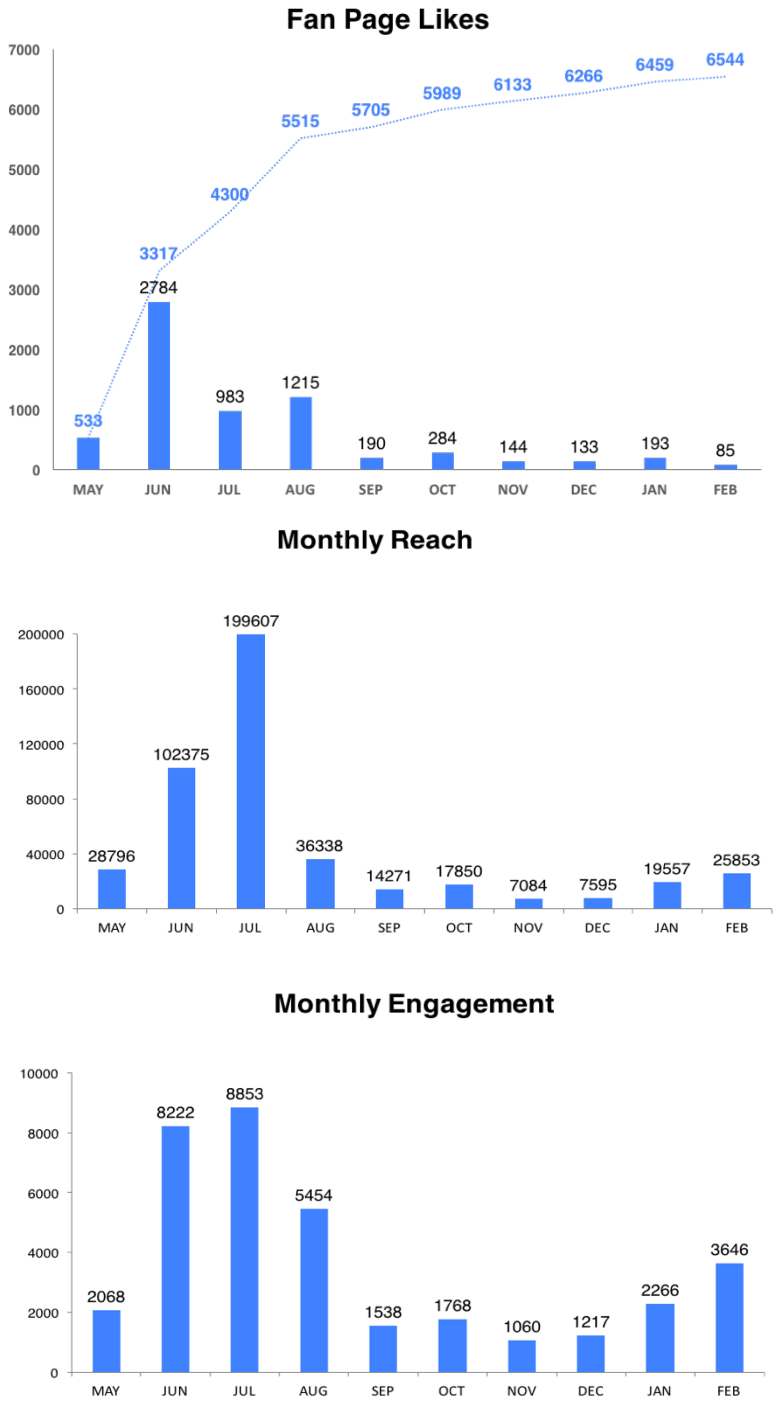


Figure 1. Page-level Facebook Insights on *East Los High* fan page

Note. The top bar chart shows monthly page likes and the line chart shows the total page likes accumulatively. The middle bar chart is based on the past 28 days of audience reach, measured as the number of unique users who saw any content on the *East Los High* fan page. The bottom bar chart is based on the past 28 days of user engagement, measured as the number of unique users who engaged with the content by liking, commenting, or sharing a post; clicking a link; viewing a photo or video; liking or mentioning the *East Los High* fan page.

Table 2 summarises post-level insights. At its best, a single post reached 10,780 Facebook users, engaged 1,501 of them to interact with the content, and prompted 940 of them to talk about it. For a new web drama series, this was encouraging for cultivating a fan base. However, on average, each post reached around 2,000 people, engaged about 200, and prompted just 50 to generate stories about it. In other words, the audience reach-engagement-dissemination ratio was 2000 : 200 : 50 or 40 : 4 :1. Given the large standard deviations, it is noteworthy that this ratio may be a generous estimate.

Table 2. Post-level Facebook Insights on *East Los High* fan page

Measure	Definition	Maximum	Median	Mean	SD
Lifetime total reach	The total number of unique users who saw the post	10,780	1,864	2,097.47	1,351.49
Lifetime engagement	The total number of unique users who clicked anywhere on the post	1,501	167	205.91	222.18
Lifetime talking about this	The number of unique users who created a story by interacting with the post	940	29	57.88	87.64
Lifetime talking about post among fans	The number of unique users who liked the fan page and also shared stories about it	822	25	46.84	71.63
Lifetime stories posted by fans	The number of stories generated about the fan page posted by people who liked the page.	1,176	34	66.71	104.78

Twelve posts were considered the most successful because they ranked at the top of at least one of the 10 indicator categories and most of them topped in multiple categories. Of these 12 most successful posts, 10 used photos, one provided a link to an *LA Times* article about the show, and one was a status update of Season 2 announcement. Not only did they demonstrate the power of imagery like in the idiom "a picture speaks a thousand words," they turned out to be particularly effective when combined with short texts that made specific calls for action. An example was a screenshot from Season 1 with the text: "We are crossing our fingers for a Season 2. 'Like' this post if you turned your friends + fam into #ELHaddicts. If not, tag 'em and tell 'em to spice up their summer days!" In another example, along with a picture of the cast making funny poses, the fans were asked "What would be YOUR dream Season 2 of ELH? What stories do you want to be told? What characters have to be in it? Or what type should be added? Only in #EastLA of course…"

In the *East Los High* co-commenting network, an edge was created between every pair of Facebook users who commented on the same post. As seen in Figure 2, the network had 740 nodes and 10,311 edges; *East Los High* was shown to have had a central role in the network with the highest degree of 279, and a dedicated set of evangelistic users actively commented on and promoted *East Los High*'s posts. The top word pairs showed that there was an overwhelming desire from the audience who wanted to see Season 2; they also reflected positive programme feedback and discussions related to the show's social objectives with word pairs such as "Planned Parenthood," "Plan B," "coping HIV," "birth control," and "safe sex."

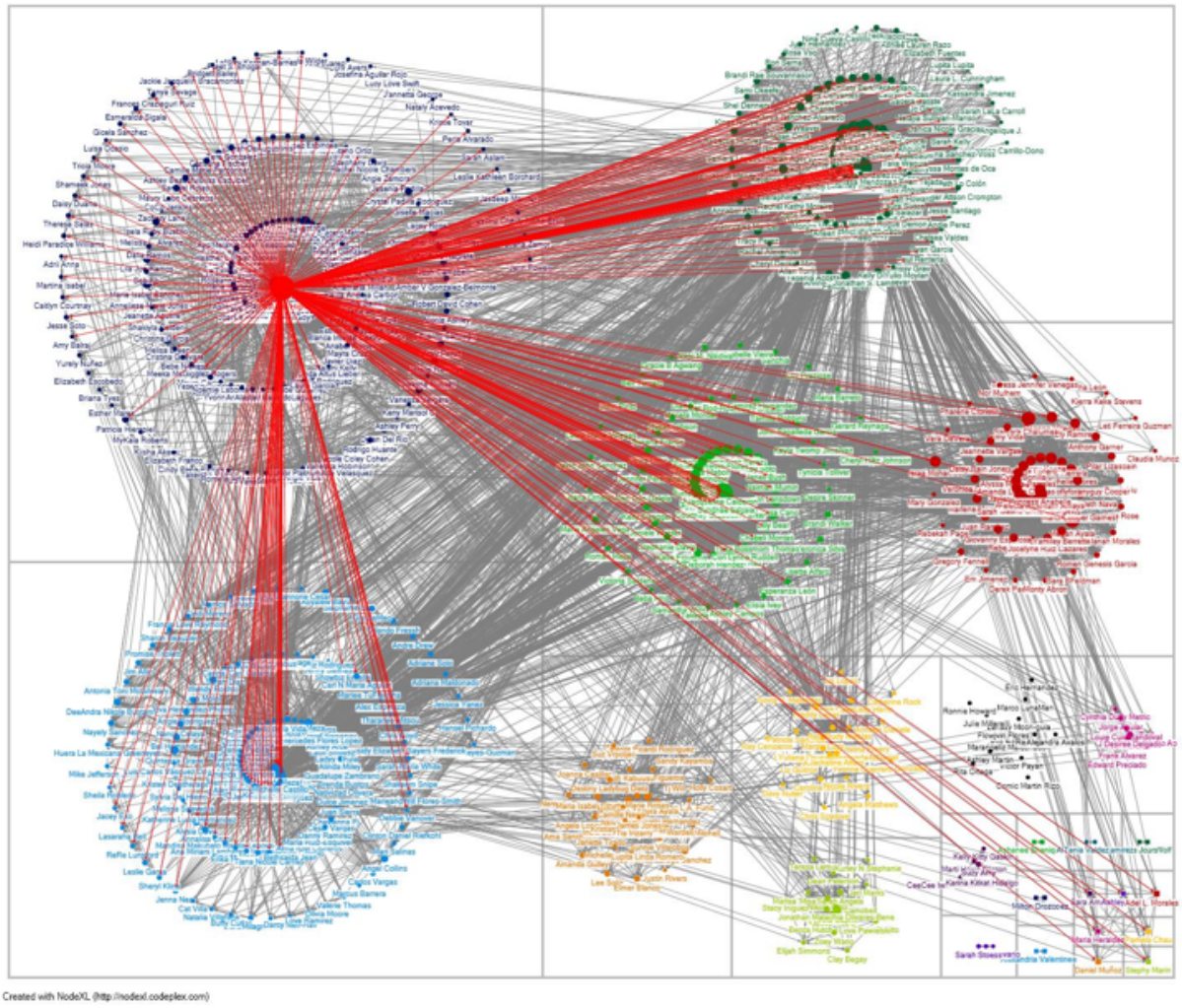


Figure 2. *East Los High* Facebook co-commenting network visualisation

Note. The red node and edges highlight *East Los High* and its interactions with fans on Facebook.

Conclusions

East Los High gained traction on Facebook from the public around its Season 1 broadcast. The fans actively promoted the show and the posts that elicited the most user reactions were predominantly photos, often with short texts calling the fans to specific actions. Overall, *East Los High* played a central role in the Facebook user co-commenting network and key health issues did appear in the top word pairs. However, the ratio of audience reach-engagement-dissemination was 40 : 4 : 1, suggesting that simply adopting a popular social media platform for programme promotion does not necessarily guarantee success in meaningful user engagement. Content producers need to present their messages strategically and activate more fans to build a sustainable community. Public health programme developers can benefit from understanding basic structures of information flow and social networks to effectively monitor user dynamics, provide tailored feedback, and cultivate a strong fan base.

EAST LOS HIGH TWITTER HASHTAG NETWORK ANALYSIS

Objectives

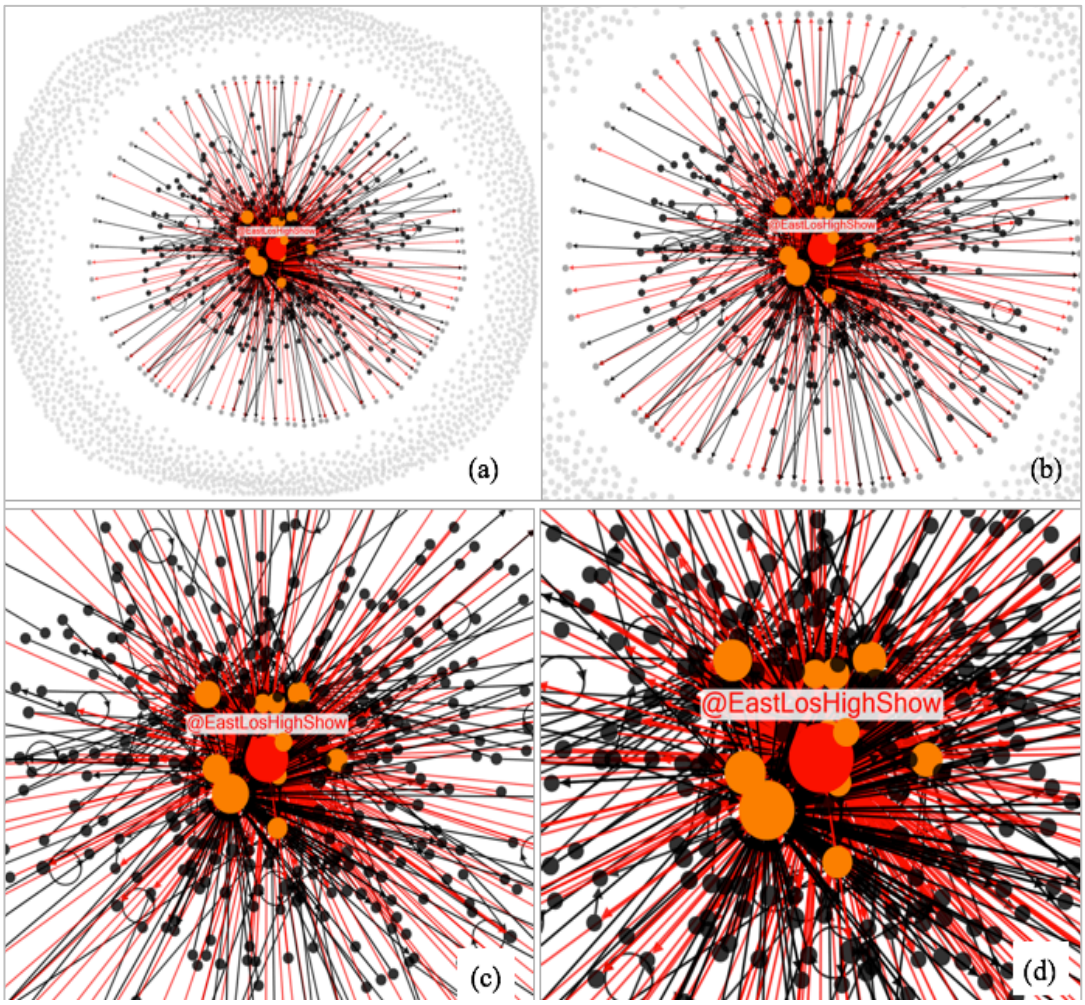
This study aimed to examine the structures of the *East Los High* Twitter hashtag network and explore the potential to build a better online community around the show, enhance the efficacy of its health messages, and ultimately help meet its social objectives.

Methods

Data were retrieved using custom Python code. Key network indicators were calculated and network visualisations were generated through NodeXL to illustrate the interactions between *East Los High* and its followers with tweets that included #ELH, #ELHaddict(s), and/or #EastLosHigh from the same period as the Facebook study, May 1, 2013 to January 31, 2014.

Results

The hashtag network consisted of @EastLosHighShow and 2,136 Twitter followers with 1,004 directed connections. Results of network analyses revealed an onion-like layered structure as shown in Figure 3. A majority of the followers (81%) did not do anything beyond clicking to "follow" @EastLosHighShow on Twitter; a few (4%) were passively involved as being retweeted or mentioned by others; some (15%) participated sporadically by sending tweets, retweets, mentions, and replies with the *East Los High* hashtags 1–10 times; and only a small core group (0.4%) actively discussed and promoted the show, which turned out to be @EastLosHighShow itself and eight of its cast members. Among the members of this core group, their out-degree ranged from 11 to 147, and their in-degree ranged from 32 to 227, suggesting that the most interactive part of the network was more of an in-group dynamic for self-promotion. In addition, we also discovered that most of the advisors, media organisations, and influencers that *East Los High* listed on its official Twitter account did not follow back, or even if they did, they did not tweet about *East Los High* frequently, despite the fact that some of them already had tens of thousands of followers on Twitter. They are the latent ties, representing social capital yet untapped.



(a) Full view of the network, with the outer layer of light grey isolates indicating Twitter users who are followers of *East Los High* but did not tweet, retweet, reply, or mention using the hashtags #ELHaddict(s), #ELH, and/or #EastLosHighShow.

(b) Closer view of the network, with the component's outer layer of darker grey nodes indicating Twitter users who were retweeted at or mentioned by others, but did not actively send out tweets themselves.

(c) Closer view of the network, with the component's middle layer of black nodes indicating Twitter users who tweeted, retweeted, and/or mentioned *East Los High* sporadically.

(d) Closer view of the network, with the inner core of bright nodes indicating Twitter users who actively participated in the discussions through tweets, retweets, mentions, and replies; the orange nodes are the most active users and the red node represents #EastLosHighShow.

Node size indicates out-degree, red edges indicate interactions involving #EastLosHighShow, black edges indicate all other user interactions.

Figure 3. *East Los High* hashtag network visualisations

Conclusions

Simply monitoring the number of tweets, retweets, mentions, and replies of individual posts is useful but not sufficient. Understanding the underlying patterns of connections and interactions can provide crucial insights to help organisations use their limited resources to target actions with higher impact. The onion-like layered structure of the *East Los High* hashtag network indicates that the interactions between @EastLosHighShow and its followers, advisors, related media organisations, and influencers are fragmented. This pattern is not uncommon, especially at the initial stage of a brand establishment. In order to build a better online community for the fans, it is recommended that programmes like *East Los High*: (1) maintain the enthusiastic hub of core members but also mindfully engage the fans to join their conversations; (2) activate the salient latent ties and encourage their listed advisors and connected media organisations (especially those with high number of followers) to follow back and help promote the show and its health messages; and (3) convert the isolated followers from passive lurkers to active participants in discussions about the show, its cast, and the health and social issues addressed in the programme.

DISCUSSION

Lessons Learned

East Los High represents an interesting case where the collaborative team of producers, NGO partners, and researchers attempted to leverage the full potential of digital and social media to create a story world, engage a critical mass of young and Latino audiences, and develop fan communities. Choices surrounding the core narrative, main characters, and health messages were consciously made by the team to create a gripping, compelling, and socially relevant entertainment programme that effectively promoted health and social causes. These efforts addressed the urgent needs of generating the conditions for and evaluating the long-term impact of health campaigns through user engagement and community building.

These studies show that social media fandom has the potential to meaningfully facilitate these activities and processes. *East Los High* debuted as an online teen drama and expanded its story world through a wide range of digital platforms on the show's website with further extensions into social media. As two of the most popular social networking sites, Facebook and Twitter did help *East Los High* reach a broader audience with opportunities of direct interactions with the producers, cast, and other fans. However, the levels of user participation varied. Although in the nine months around its Season 1 premier, the *East Los High* Facebook fan page accumulated almost 6,500 page likes, our in-depth analysis of the audience reach-engagement-dissemination ratio was 40 : 4 : 1; on average, a post reached 2,000 users, around 200 of them clicked on it, and just 50 generated stories to talk about it and spread the message. This suggests that the promotional efforts benefited from the large active user base on Facebook for the initial programme exposure, but the deeper and more meaningful user engagement was rather challenging. Similarly, the Twitter hashtag network indicated a decent following but mainly a small core group was engaged in social interactions and active discussions. Such difficulty is consistent with the experiences of many other health promotion programmes and organisations.

On the other hand, we discovered that Facebook posts with predominantly photos were the most successful in eliciting fan reactions, especially when they were coupled with specific calls for action. In that case, an image-based push message served as an invitation for participation and the Facebook users did respond well to those calls, making it more of a two-way rather than one-way communication. Our Twitter hashtag network analyses revealed an

onion-layered structure showing the fragmentation of user engagement. However, with these research insights, we are able to pinpoint specific types and groups of users to help *East Los High* strategically improve its interactions with the fans and build a better Twitter community.

Research Implications

Theoretically speaking, health promotion programmes have relied on frameworks such as McGuire's hierarchy of effects model and the two-step flow that were developed when traditional mass media predominated the communication channels for the members of a society. But we know with the advent of digital technologies, individuals routinely go through the process of a multi-step and multi-loop flow when seeking information and consuming entertainment (Kayahara & Wellman, 2007; Ognyanova, 2017). The affordances of social media challenge researchers to pay attention to the media ecology in which individual users are embedded, and also to account for the interactive, dynamic, and evolving nature of the underlying communication mechanisms that drive impact.

Methodologically speaking, most of the social media analytics applications tend to focus on numerical and descriptive reporting. While useful, they can represent superficial, incomplete, and misleading data. Our Facebook and Twitter analyses suggest that tracking digital footprints over time and carrying out in-depth analyses of the undergirding network patterns can inform targeting and promotional strategies to accomplish programme impact. Such occurs through a deep understanding of the structures that govern mediated social interactions and through an appreciation of social network analysis. An online community is a network of people connected by friendship, interactions, and mutual affiliations (Hanna, Rohm, & Crittenden, 2011). Network science has revealed that certain network structures can facilitate information flow and social influence to promote healthy choices and behaviours (Valente, 2010).

Practically speaking, Smith and colleagues (2014) distilled six archetype network structures commonly observed on Twitter: (1) *polarized crowds* often dominating political online conversations; (2) *tight crowds* with dense connections, frequently seen in the context of professional conferences and discussions of niche hobbies; (3) *brand clusters* with a few highly active individuals and many inactive and disconnected users; (4) *community clusters* with multiple groups that each has their own audiences; (5) *broadcast networks* typically with one dominant sender and many passive receivers; and (6) *support networks* that produce hub-and-spoke structures. Based on the network structure, different user engagement strategies can be recommended, boosting the central hubs and creating bridges to amplify the roles community members can play within the network. Our Twitter hashtag network analyses yielded such recommendations for Season 2 of *East Los High,* and hold value to spur social media fandom for other health promotion initiatives.

Limitations

Although the social media user activities we used in these studies provided insights based on analyses of unobtrusive behavioural data, they hold several limitations. First, Facebook and Twitter users often don't post accurate or comprehensive personal information such as sex, age, and race/ethnicity on their user profiles for privacy concerns (Boyd, 2010; Madden et al., 2013). Even though the user names, profile pictures, and available information suggested that a majority of the fans on *East Los High* Facebook page and Twitter hashtag network were young, female, with connections to the Latino culture—a finding consistent with our analysis of the viewer survey and geo tracking (Wang & Singhal, 2016), there is no way to validate the same for social media users unless we had the resources to contact them directly. Second, our results related to the health topics were encouraging as they did stand out in the fan discussions. However, it seemed it was much easier for the fans to talk about how much they

enjoyed *East Los High* rather than participating in deeper conversations about sexual and reproductive health. While some fans were comfortable sharing their personal stories on social media, most were hesitant to discuss such sensitive topics in the public domain. Health promotion programme developers and researchers should, thus, be deeply mindful about the affordances and constraints that exist in the social media space.

Endnote

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[i] Season 1 of *East Los High* was a creation of Population Media Center (PMC), a Vermont-based non-profit organisation that is a global leader in the production of edutainment serials, and various national, regional and local NGOs. Its Executive Producer and creative genius was Katie Elmore Mota, who during the initiation of Season 1 served as Vice-President of PMC. Subsequently, Mota co-founded Wise Entertainment, her Hollywood-based production company, and continued to guide *East Los High*'*s* creative processes in her Executive Producer role across the programme's five seasons.

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