

Tweets and Sales

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Microblogging websites gained significant popularity

▶ Leading examples

- Twitter in the US
- Weibo in China



▶ Central feature

- Tweets: short posts disseminated from users to followers

▶ Some statistics

- Twitter users post 500 million tweets a day
- Weibo users post 100 million tweets a day

Businesses resort to tweeting as a marketing tool



- ▶ 73% on Twitter
- ▶ 29% on Weibo

Businesses resort to tweeting as a marketing tool

- ▶ Over 4,500,000 small businesses are on Twitter
- ▶ Over 130,000 small businesses are on Weibo



Open question:

Do tweets help company grow sales?

25 CASE STUDIES USING TWITTER TO INCREASE BUSINESS AND SALES

POSTED BY KYLE LACY

1. Dell Outlet

Dell Outlet doesn't have the time to hire an agency and develop an ad campaign. Instead, the company turns Internet marketing using tools like Twitter. The company started to use Twitter to push information out and soon found out that people were interested in talking. Twitter is good source for not only raising awareness on deals but to interact with customers. The company offers post exclusively on Twitter and makes sure to use twitter only a few times a week to avoid spamming their followers. They also use tracking URLs to determine what users find most appealing. Last but not least. The company found that the Twitter deals do increase sales. Dell Outlet has booked more than \$3 million in revenue which can be attributable to its Twitter posts. In addition, the division has done research showing that the overall awareness of the outlet has grown, too.

1,128



2. JetBlue

JetBlue was among the first corporate companies to join Twitter in 2007. Now in 2010 JetBlue has nearly a million followers and is often cited as an example of small corporate twittering. It's goal when joining Twitter was to simply, help customers. They eventually found out what the dos and don'ts were for their customers. How did they do this? By asking. The company found that customer service tweets generated more followers and replies. When tweeting about a press release they found no response. JetBlue then began asking question in order to find out what the customers wanted. This approach has made them quite successful. JetBlue tore down the wall between the customer and the brand by implementing what was to be just an experiment, Twitter.

3. Teusnerwine

Teusner Wines, is a boutique winery located in Australia and has only three employees. One of the three employees, Dave Brooks, sales and marketing director, noticed that Lance Armstrong was on Twitter. Brooks soon joined and started following Armstrong. He started to think that Twitter would be a good tool to tell people about the winery, in hindsight he was right. To get started he searched for wine-related terms. When he found influential and relevant users he followed them and eventually started conversations related to the business. He has since grown the following and makes a point to send personal thank you messages to customers. His mentality is to build relationship which can't be done by simply selling a product. Since using Twitter, Brooks has seen more people coming to the winery for tours, more traffic to the website and numerous people in the United States and Canada asking where they can find the Teusner Wines. His focus is on the customers not the numbers.

4. Tasti D Lite

Tasti D Lite, a guiltless place to enjoy frozen yogurt, began its journey with Twitter cautiously. BJ Emerson, Director of Information and Social Technologies, started by using Twitter to listen to what customers were saying about Tasti D, its products and it's competitors. BJ advise a three "m" approach when getting started on Twitter-monitor, measure and mingle, which is exactly what he did. Once he did that he started following users who had mentioned tasti and began turning the comments into conversations. BJ often tweets exclusive coupons where he creates specific codes for each coupon. These codes are entered into the point of sale cash registers at tasti locations to enable the tracking of coupon conversions and the resulting sales. BJ concludes from the numbers, that Twitter coupon campaigns can outperform similar targeted ads on other social network platforms or certain PPC ads if used effectively. Their next plan is to begin experimenting with paperless mobile coupon options and Twitter accounts for individual stores.

5. Coffee Groundz

Coffee Groundz is an independent coffee shop in Houston, TX. The owner J.R. Cohen began his Twitter journey by going out of his way to interact with Houston Twitter users following him on Twitter. He says his growth was slow and organic but the connections he made were strong. He began to ask his followers to "come into the store and ask for J.R." This gave him the opportunity to meet with every patron who asked for him, thus strengthening the bond with his followers. Due to an odd request from a customer using Twitter J.R. started taking and receiving to-go orders via DM. Customers can also reserve a table/booth, order from the patio, or reserve the place for events through direct message. Twitter helped J.R. create a more efficiently run coffee house and his many patrons agree.

6. Etsy

Etsy is an online marketplace for buying and selling all things handmade. Naturally, Twitter was an ideal fit. The company found that their community was using

We run a field experiment on Weibo.com

- ▶ To identify the causal impact, we randomize
 - Company tweets of its own product
 - User retweets of company tweets

Weibo



- ▶ Owned by Sina Corporation
- ▶ Launched in August 2009
- ▶ Began public trading in April 2014
- ▶ Current Alexa ranking 17

	Weibo	Twitter
Total registered users	Over 500 million	Over 500 million
Growth of registered users in 2012	Over 150 million	Over 100 million
Monthly active users	46 million	200 million
Growth of active users in 2012	16 million	60 million

Main user activities on Weibo

- ▶ Tweet: broadcast a message
 - Text (limited to 140 characters)
 - Multimedia
- ▶ Retweet: forward other users' tweets
- ▶ Follow: subscribe to other users' tweets

We collaborate with a TV company

- ▶ A major global media company that produces documentary TV shows
 - Mainly broadcast on 7 local TV channels (Shanghai, Guangdong, Tianjin, Hangzhou, Wuhan, Fuzhou, Chongqing)
 - One show each day; same show for all channels
- ▶ Company presence on Weibo
 - Weibo account created in October 2010
 - One “show tweet” and several other tweets each day
 - 2,268 tweets and 125,056 followers right before the experiment

Experimental setting has several desirable features

- ▶ The show viewing data of the TV company is able to be tracked
 - Helps measure the product “sales”
- ▶ The TV company uses Weibo as a primary marketing platform
 - Helps attribute demand shifts to tweets
- ▶ Tweeted shows are broadcast on the same day
 - Helps measure immediate effects on demand
- ▶ Demand for TV channels is separable (e.g. audience in Shanghai can only watch the show on the Shanghai TV channel)
 - Helps implement additional between-subject design across TV channels

Primary experiment design: show level

- ▶ 98 shows are randomly assigned into three conditions

Experimental condition	Number of TV shows
Control (no tweets or retweets)	14
Tweet	42
Tweet & Retweet	42

Three experimental conditions

Control

Tweet

Tweet & Retweet

No company tweet

+

+

+

No user retweet

No user retweet



- Company tweets at 11:00 am; user retweets company tweets at noon

Company tweets

十一月大片预告#顷刻间，一次鲨鱼攻击永远改变了六个人的生活。但当他们发现有关鲨鱼的惊人真相：每年都有大约七千三百万条鲨鱼被杀，有些鲨鱼如大白鲨很有可能在几十年后消失。这些鲨鱼攻击的受害者竟然团结起来以拯救这些差点杀了他们的美丽动物。
《守护猛鲨》今日播出（11月5日）

收起 | 查看大图 | 向左转 | 向右转



电视台	频道	首播	重播
上海电视台	纪实频道	18:30	13:00(周一~五)
杭州电视台	导视频道	23:00	11:00/17:00
广东南方电视台	经济科教频道(TVS1)	16:55	

其它地区电视台播放信息请见 [首页](#)

2012-11-5 10:51 来自360安全浏览器

转发(423) | 收藏 | 评论(63)

Company tweets

Text:


[Introduction of the show]. [Show title] is going to be broadcast today [Month/Day].

Picture


Broadcast info of 3 TV channels

其它地区电视台播放信息请见 [首页](#)

User retweets

:六个曾被鲨鱼深深伤害过的人却成了保护鲨鱼的卫士! 没看过他们的故事, 你不会知道失去鱼翅的鲨鱼是多么可怜。人类为何对鲨鱼如此残忍? 我们应如何拯救它们? 今日探索频道播出《守护猛鲨》节目, 震撼心灵。。。转!



十一月大片预告#顷刻间, 一次鲨鱼攻击永远改变了六个人的生活。但当他们发现有关鲨鱼的惊人真相: 每年都有大约七千三百万条鲨鱼被杀, 有些鲨鱼如大白鲨很有可能在几十年后消失。这些鲨鱼攻击的受害者竟然团结起来以拯救这些差点杀了他们的美丽动物。《守护猛鲨》今日播出 (11月5日)



2012-11-5 10:51 来自360安全浏览器

 | 转发(423) | 评论(63)

User retweets

Text:

[Personal description of the show].

Don't miss the show today. /Check out this show today...

十一月大片预告#顷刻间，一次鲨鱼攻击永远改变了六个人的生活。但当他们发现有关鲨鱼的惊人真相：每年都有大约七千三百万条鲨鱼被杀，有些鲨鱼如大白鲨很有可能在几十年后消失。这

Retweet of company tweet



2012-11-5 10:51 来自360安全浏览器

👍 | 转发(423) | 评论(63)

We recruit Weibo influentials to retweet

- ▶ Weibo influential
 - Has many followers
 - Tweets actively
 - Retweeted actively by followers

- ▶ We recruited 42 Weibo influentials to retweet the show tweets
 - A total cost of 6,790 USD (160 USD for each)
 - Different influentials retweet different shows

- ▶ Summary statistics of these Weibo influentials

	Mean	S.D.	Min	Max
Number of followers	2,111,873	1,817,517	321,644	9,574,535
Daily number of tweets	45	38	1	179
Average number of followers retweets	729	534	60	3,049

Other company tweets

- ▶ 2.8 other tweets daily
- ▶ Interesting stories about science, technology, nature, history etc.

#各抒己见#你是一名乐观主义者，还是悲观主义者？还是，一位科学家？



2012-8-22 17:14 来自 新浪微博

转发 (181) | 收藏 | 评论 (49)

Secondary experiment design: TV channel level

TV channel	Broadcast time		Week 1-7	Week 8-14
Shanghai	After treatment	Treated channels	Display	Display
Tianjin	After treatment		Display	No display
Wuhan	After treatment		Display	No display
Hangzhou	After treatment		No display	Display
Guangdong	After treatment		No display	Display
Fuzhou	Before treatment	Untreated channels	No display	No display
Chongqing	Before treatment		No display	No display

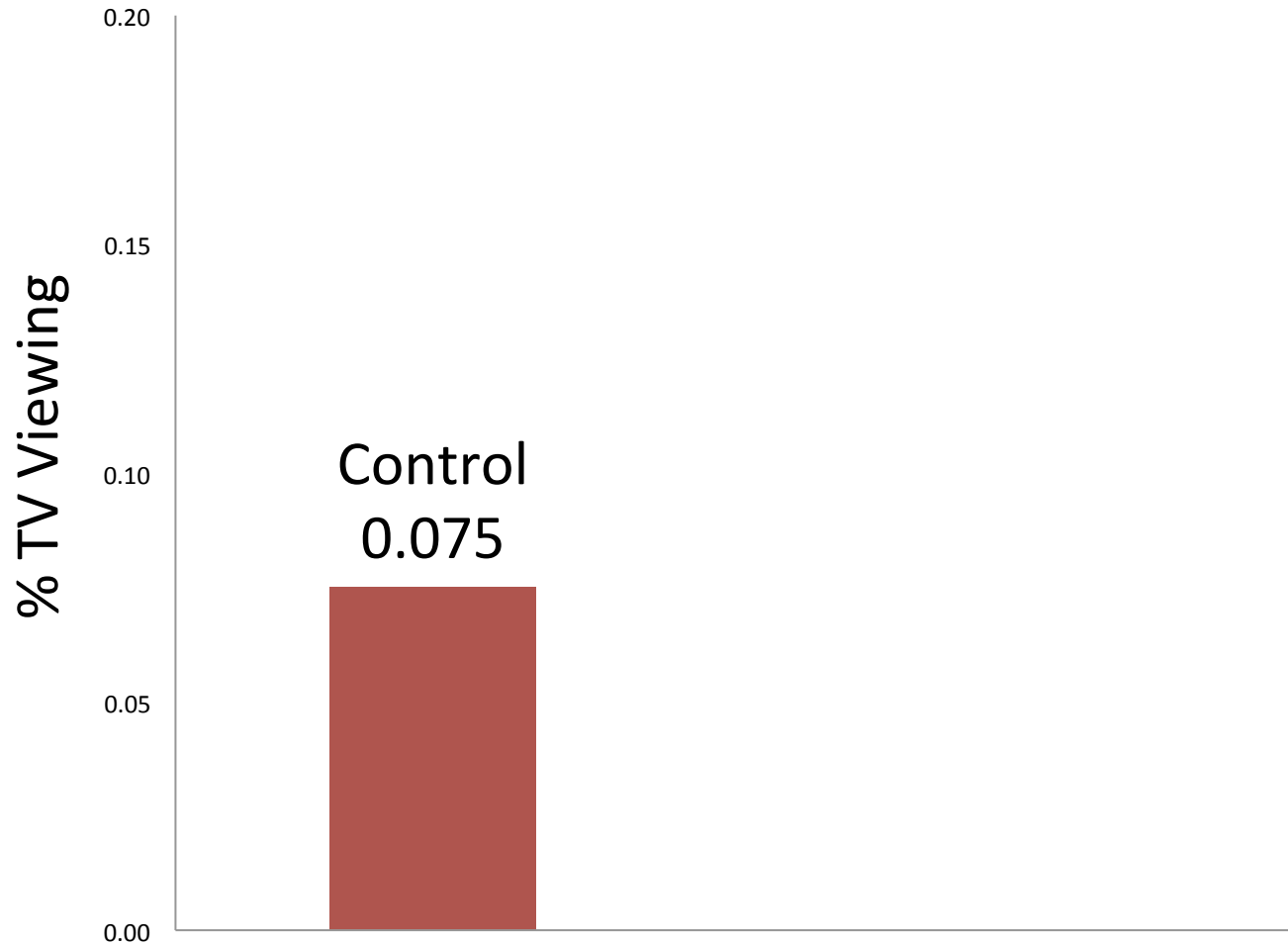
- Treated channels: both treatments occurred before the broadcast
- Untreated channels: both treatments occurred after the broadcast
- Display: broadcast info displayed in company tweet

Experiment implementation

- ▶ Ran experiment over 14 weeks: August 20 – December 2, 2012
- ▶ Ensured the TV company's other Weibo activities remained constant and balanced across conditions
- ▶ Ensured the TV company engaged in no marketing activities other than Weibo marketing
- ▶ Ensured Weibo implemented no feature changes

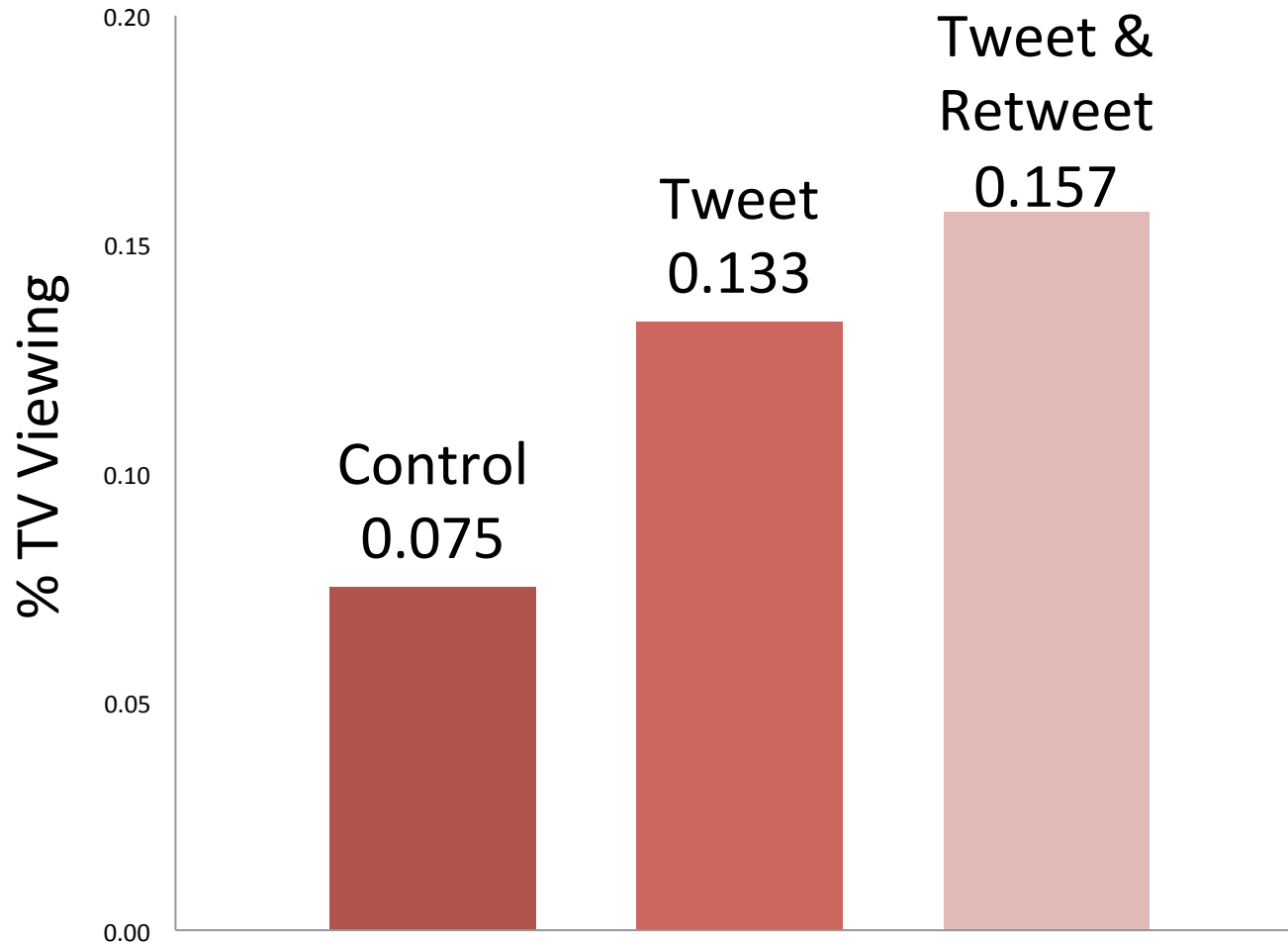
Raw effect on TV viewing

- ▶ Variable: % of audiences who watched a given show



Raw effect on TV viewing

- ▶ Variable: % of audiences who watched a given show



Treated channels: TV viewing increased in both treatment conditions

	(1)	(2)	(3)	(4)	(5)
Tweet (α_1)	.0500***	.0514***	.0514***	.0492***	.0576***
Tweet & Retweet (α_2)	.0694***	.0698***	.0698***	.0707***	.0824***
Other company tweets		.0035	.0035	.0007	-.0022
Channel dummy			Yes	Yes	Yes
Week dummy				Yes	Yes
Day-of-week dummy				Yes	Yes
Series dummy					Yes
Episode dummy					Yes
Genre dummy					Yes
Difference between α_2 and α_1	.0194*	.0184*	.0184*	.0215*	.0248**
Observations	490	490	490	490	490
R-squared	.033	.035	.347	.372	.389

DV: % viewing of a show on a channel; OLS; Robust standard errors clustered at show level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Untreated channels: TV viewing did not increase in either treatment condition

	(1)	(2)	(3)	(4)	(5)
Tweet (α_1)	.0050	.0058	.0058	.0052	.0075
Tweet & Retweet (α_2)	-.0040	-.0038	-.0038	-.0039	-.0044
Other company tweets		.0021	.0021	.0008	.0022
Channel dummy			Yes	Yes	Yes
Week dummy				Yes	Yes
Day-of-week dummy				Yes	Yes
Series dummy					Yes
Episode dummy					Yes
Genre dummy					Yes
Difference between α_2 and α_1	-.0090	-.0096	-.0096	-.0091	-.0119
Observations	196	196	196	196	196
R-squared	.011	.020	.030	.132	.177

DV: % viewing of a show on a channel; OLS; Robust standard errors clustered at show level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Does displaying broadcast information matter?

	All shows	All shows	Displayed	Not displayed
Tweet (α_1)	.0576***	.0462***	.0691***	.0402**
Tweet & Retweet (α_2)	.0824***	.0551***	.1007***	.0550***
Display	.0052	-.0224		
Tweet \times Display		.0189		
Tweet & Retweet \times Display		.0455**		
Other company tweets	-.0022	-.0022	-.0004	-.0048
Channel dummy	Yes	Yes	Yes	Yes
Week dummy	Yes	Yes	Yes	Yes
Day-of-week dummy	Yes	Yes	Yes	Yes
Series dummy	Yes	Yes	Yes	Yes
Episode dummy	Yes	Yes	Yes	Yes
Genre dummy	Yes	Yes	Yes	Yes
Difference between α_2 and α_1	.0248**	.0089	.0316**	.0148
Observations	490	490	294	196
R-squared	.390	.394	.442	.236

Does the number of company followers matter?

	All	Display	Not display	All	Display	Not display
Company tweet	-.2280	-.1578	-.3331	.0387**	.0422*	.0334
Company tweet × Followers _{t-1} (K)	.0020	.0016	.0027			
Company tweet × ΔFollowers _{t-1} (K)				.0493*	.0747*	.0112
Influential retweet	.0289**	.0362*	.0180	.0312**	.0398**	.0183
Other company tweets	-.0048	-.0033	-.0071	-.0022	.0003	-.0061
Channel dummy	Yes	Yes	Yes	Yes	Yes	Yes
Week dummy	Yes	Yes	Yes	Yes	Yes	Yes
Day-of-week dummy	Yes	Yes	Yes	Yes	Yes	Yes
Series dummy	Yes	Yes	Yes	Yes	Yes	Yes
Episode dummy	Yes	Yes	Yes	Yes	Yes	Yes
Genre dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	485	291	194	485	291	194
R-squared	.400	.454	.246	.402	.460	.242

What affects company followers – summary statistics

DV: Daily change in company followers

Condition	Observations	Mean	S.D.	Min	Max
Control	14	259	85	110	392
Tweet	42	237	188	73	1,046
Tweet & Retweet	42	335	199	87	1,240

What affects company followers – regression results

DV: Daily change in company followers

	(1)	(2)	(3)
Company tweet	-21.95	-13.48	-14.99
Influential retweet	97.21**	90.86**	90.32***
Other company tweets		22.24**	22.14***
% TV viewing			29.46
Observations	98	98	490
R-squared	.061	.106	.106

Influential attributes and company followers

DV: Daily change in company followers

	(1)	(2)	(3)	(4)
Company tweet	-14.18	-.13.88	-13.32	-12.80
Influential retweet	35.62*	144.91***	30.78	75.89***
Influential retweets × Has many followers	111.52***			56.05*
Influential retweets × Tweets actively		-106.60***		-86.37***
Influential retweets × Retweeted actively			123.00***	64.40*
Other company tweets	20.40***	20.16***	19.09***	18.07***
% of TV viewing	.01	-7.88	-27.18	-45.25
Observations	490	490	490	490
R-squared	.144	.141	.151	.177

Effect magnitude

- ▶ Company tweets increased TV viewing by 77%
- ▶ Influential retweets increased TV viewing by another 33%
 - 57% if the company tweet was informative
- ▶ Influential retweets increased company follower by 35%
 - Which then increased next-day TV viewing by 6%

Summary of findings

- ▶ Tweets increase sales (in the case of TV show viewing)
 - Company tweets increase sales directly
 - Influential retweets
 - ▶ Increase sales directly if company tweets are informative
 - ▶ Increase sales indirectly by growing company followers

Implications

- ▶ Encouraging news to businesses
 - Tweets can improve the bottom line

- ▶ Actionable recommendations
 - Tweet about your own product
 - Hire influential users to retweet
 - ▶ Help new customers buy

- ▶ Revenue model for microblogging platforms
 - Charge a fee for business accounts?

Thank you

Appendix

Literature on microblogging & social media

- ▶ **Computer science and information system** (e.g., Geol et al. 2012; Kwak et al. 2010; Cha et al. 2010; Weng et al. 2010; Bakshy et al. 2011; Romero & Galuba 2011; Shah & Zaman 2011; Wu et al. 2011; Zaman et al. 2013; Shi et al. 2014; Jansen & Zhang 2009; Pak & Paroubek 2010; Bollen et al. 2011)
- ▶ **Marketing** (e.g. Stephen et al. 2012; Ghose et al. 2013; Toubia & Stephen 2013; Zhang et al. 2013; Lambrecht et al. 2014; Tucker & Zhang 2010; Aral & Walker 2011; Hinz et al. 2011; Naylor et al. 2012; Tucker 2012; Onishi & Manchanda 2012; Stephen & Galak 2012; Kumar et al. 2013)

Randomization of shows

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Mon	Control		Control			Control	Control					Control	Control	Control
Tue		Control		Control			Control		Control	Control	Control		Control	
Wed	Control	Control	Control	Control			Control	Control	Control			Control		
Thu		Control	Control	Control		Control		Control	Control	Control	Control		Control	Control
Fri	Control				Control		Control	Control	Control		Control		Control	Control
Sat	Control	Control	Control			Control		Control		Control		Control		
Sun	Control		Control	Control	Control	Control				Control	Control	Control		Control



Control



Tweet



Tweet & Retweet

TV viewing data by conditions

	#Observations	Mean	S.D.	Min	Median	Max
<i>Entire sample</i>						
Control	98	.0599	.0748	0	.04	.43
Tweet	294	.0971	.1158	0	.05	.65
Tweet & Retweet	294	.1083	.1284	0	.06	.73
All	686	.0966	.1176	0	.05	.73
<i>Shows on treated channels (i.e., channels that broadcast the shows after the treatments)</i>						
Control	70	.0749	.0811	0	.05	.43
Tweet	210	.1249	.1234	0	.09	.65
Tweet & Retweet	210	.1443	.1345	0	.11	.73
All	490	.1261	.1252	0	.09	.73
<i>Shows on untreated channels (i.e., channels that broadcast the shows before the treatments)</i>						
Control	28	.0225	.0362	0	0	.13
Tweet	84	.0275	.0462	0	.01	.26
Tweet & Retweet	84	.0185	.0331	0	0	.17
All	196	.0229	.0396	0	0	.26

Influential attributes and TV viewing

	All Shows	Displayed	Not displayed
Company tweet	.0532***	.0647***	.0364**
Influential retweet	-.0049	-.0048	-.0168
Influential retweet × Has many followers	-.0159	-.0316	.0132
Influential retweet × Tweets actively	-.0200	-.0349	-.0085
Influential retweet × Retweeted actively	.0845***	.1134***	-.0044
Influential retweet × Local	.0067	.0434*	-.0044
Other company tweets	-.0036	-.0006	-.0079
Channel dummy	Yes	Yes	Yes
Week dummy	Yes	Yes	Yes
Weekday dummy	Yes	Yes	Yes
Series dummy	Yes	Yes	Yes
Episode dummy	Yes	Yes	Yes
Genre dummy	Yes	Yes	Yes
Observations	490	294	196
R-squared	.418	.486	.259

Effect magnitude by influential type

	% TV viewing (relative to company tweeting alone)			Daily growth in company followers (relative to company tweeting alone)
	All shows	Displayed	Not displayed	
Has many followers	-.0208	-.0364	.0036	132
Tweets actively	-.0249	-.0397	-.0253	-10
Retweeted actively	.0796	.1086	-.0212	140
Local	.0018	.0386	-.0212	N/A

Bold: significant at the $p=0.10$ level