Co-viewing TV with Twitter:
More Interesting than the Shows?

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Abstract

Social media services, and Twitter in particular, are changing the way in which many people consume traditional broadcast media. Real-time backchannel conversations are now common-place as audiences simultaneously watch TV whilst using Twitter to broadcast their own thoughts, sentiments, opinions and emotions related to what they are watching. This individual behavior, when aggregated, results in a new social experience comprising of mass, real-time, co-consumption of TV services that has, thus far, been neither recognized nor investigated by the HCI community nor the broadcast industry. This paper describes a work-in-progress which aims to understand user behaviour in this burgeoning area and provides some preliminary analysis of viewers' Twitter activity surrounding the popular UK TV show, *The X Factor*.

Keywords

Co-Viewing, TV, Twitter, Social Media

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

General Terms

Co-Viewing, Social TV, Twitter, Social Media

Introduction

The consumption of media has always given rise to 'backchannel' communications [1] between viewers. Whether surreptitiously exchanging comments with a colleague from the back-row of a presentation, or discussing a TV show with a friend from the comfort of our shared sofa we are naturally drawn towards a sharing of our opinions and thoughts on the media we are co-consuming.

Social media technologies, such as Twitter, have recently facilitated an expansion of such real-time backchannel communications into non co-located, shared experiences on a very large scale. The loose coupling of Twitter with the 2010 MTV Music Awards reportedly resulted in several million messages posted by viewers on the evening of the live show [7]. It is clear that living rooms around the world are now filled with individuals – laptop or iPad on their lap – who are simultaneously watching their TV whilst tweeting their opinions to everyone – and indeed anyone - who is following the same #hashtag that evening.

Social media developers, often in loose partnership with the broadcast industry, have previously focused upon various indistinct incarnations of 'Social TV' and have developed bespoke technologies which enable the coupling of the TV experience with social media [8]. Most activity to-date however has concentrated on the development of very tightly-coupled systems in which social messages are overlaid on top of TV players (TweePlayer [10] is a recent example); such systems have not proven popular with the general public. This contrasts sharply with the mass emergent behavior of people constructing loosely-coupled collections of technologies – including laptops, mobile phones, and slates – to comment about what they are watching on their conventional TV in another corner of the room. Hence people do not seem to want tightly coupled 'interactive TV' displays – they want to use their TV as a TV and their Twitter device as just that.

In this paper we describe our initial investigations into the way social media services, and Twitter in particular, are facilitating mass co-consumption of broadcast media and, in turn, changing viewing habits and attitudes. We believe that this user behaviour has, thus far, been neither recognized nor investigated by the HCI community nor the broadcast industry. It is our intention to pursue a program of work to study this topic and this preliminary foray lays the ground work from which we will develop our research agenda.

Twitter, Tweets and Television

Twitter is a well known micro-blogging service which allows users to broadcast and read short communication messages. Current estimations are that Twitter has 175 million world-wide registered users. In each Twitter message, known as a "tweet", a maximum of 140 characters can be employed by the user to carry the text of their communication. Content can include 'hashtags', (#xfactor is an example) to aid searching, classification and archiving. Tags are freeform and at the discretion of the tweeter. Typically, users configure their Twitter client software to only receive tweets from other users or hashtags that they have selected to 'follow', but messages can be sent to specific individuals using the '@' symbol followed by their username. A form of high praise termed a "Re-tweet" is also common, where a received message is copied and resent to the ones followers. The current open access policy to Twitter data through its own published APIs

and third party archive services such as Twapper Keeper [9], has created a window of opportunity in which researchers are able to 'twitter-mine' the data for the purposes of their interests.

Aside from one off events such as the MTV awards, Twitter has, thus far, been somewhat awkwardly embraced by the mainstream broadcast industry. Live TV and radio broadcasts often state 'official' hashtags to include in tweets as well as broadcaster and celebrity accounts to follow. Resulting content from public tweets is often read out aloud in TV shows whilst TV celebrities – or their aides – commonly promote themselves through their Twitter accounts. These are often indistinguishable from automated software agents, or 'bots', which tweet advertising 'spam' including popular hashtags to ensure a high hit rate in TV-related searches.

The X-Factor

"The X Factor" is a televised talent show produced by FreemantleMedia and SYCOtv which invites members of the public to audition in front of a panel of celebrities and music industry professionals. Successful candidates are taken through a selection process which culminates in a, typically, ten week run of weekly live shows filmed in front of a live audience and broadcast live on the free-to-air ITV national network. After each live show the viewing public is invited to vote, by telephone, for their favourite performer. The show's professional panel then decides which one of the two bottom ranked performers should leave the show that week. The X Factor has aired annually in the UK since 2004, and is also replicated in many other countries.
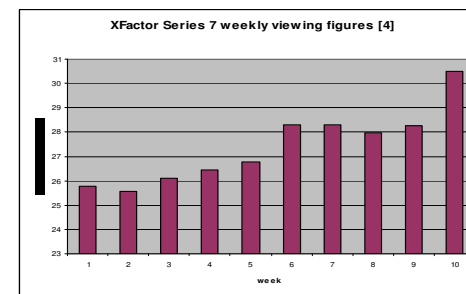

Figure 1: X-Factor Series 7 (s7) weekly viewing figures

The X Factor format encourages opinions to be cultivated among the viewing public about the performers, the judging panel and the show itself. It is also clear that viewers use Twitter to express such opinions online both during the live broadcast and throughout the run of the show. This behavior is – of course – not limited to the X Factor – most TV shows will generate a volume of tweets that are concentrated during the broadcast. However we chose the X Factor for a pilot investigation because it was consistently the most popular TV show each week attracting a viewing audience averaging 14 million viewers (published in [3] and summarized in Figure 1), and it reliably generated a large volume of weekly tweets (summarized in Figure 2). Given this context we set out to investigate patterns of co-viewing the X Factor broadcasts and associated Twitter feed content.

Data collection

Using the archiving site Twapper Keeper, a corpus of 1,787,000 tweets containing the hashtag '#xfactor' and made during period of the live shows (11th September 2010 to 12th December, 2010) was collected. Tweets were examined to determine the originating user, the

time/date stamp and the tweet text content. This continuous set of data was split into weekly sub-sets using the show start time (Saturday, 18.30PM GMT) as a threshold.
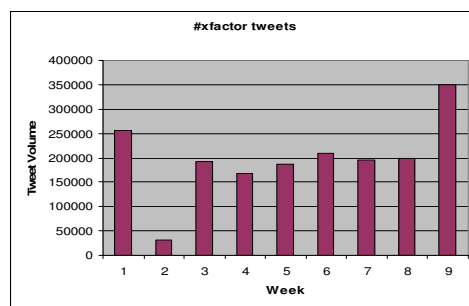

Figure 2: XFactor s7: #xfactor weekly tweet volumes. NB: week 2 was affected by archiving problems.

Both #xfactor tweet numbers and xfactor viewing figures show a similar progression though the series. While this data collection approach generated a very large and rich dataset, there are a number of issues with this sampling method. Firstly, only tweets were collected containing the #xfactor tag. Not all tweets about the xfactor contained this tag, some Twitter users who watched the X Factor – or wished to comment on it - included other tags, or none at all. It was felt however, that the #xfactor tag was the most powerful means to generate a dataset to perform our initial work-in-progress.

Analysis of Tweets

The purpose of this pilot study was to broadly begin to understand user behaviour when tweeting about live TV broadcasts. We initially wished to determine whether such b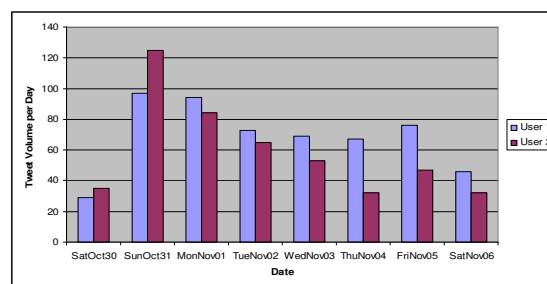ehaviour matched that commonly shown in other forms of social media engagement i.e. the 'long-tail' effect or power law relationship [4]. User behaviour was mirrored on a weekly basis. Taking Week 4 as an example, the top 20% of tweeters (n = 7962) account for 68% of the total tweet volume that week. (n_{users}: 39817, n_{tweets} with #xfactor tag: 168498). Figure 3 shows a log(10) plot of tweet volume (n) against tweeter (t_x). The resulting linear best fit suggests an approximate power law relationship linking the tweet volume to the ranked user order and hence that the user behaviour does indeed broadly correspond to a long-tail effect.
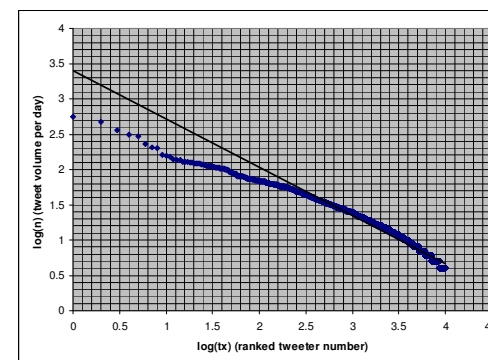
Figure 3: XFactor s7, week 4: Log-Log plot between tweet volume and users.

We noticed however that this relationship was distorted somewhat by set of unusual tweets that were being generated by a small number of Twitter accounts throughout the X Factor series. The top two most frequent tweeters posted on average 70 and 60 times each day of the week. The content of these tweets reveals these accounts as automated tweet 'bots' with hundreds of identical tweets per week. The profile of

tweet frequency for these users also hints at their nature as automated bots as shown in Figure 4. Tweet rates from these bots peaked after the weekend shows, maintained a high volume during the week and gained frequency again as the following weekend shows approached. Tweet content was primarily focused upon promotion of 3rd party websites to other twitter users.

Poor song choice again #xfactor This is rubbish.

The only way TreyC's is going to be worse is if she lifts up her dress and takes a shit on stage. #xfactor

Figure 4: XFactor s7 wk4: Automated 'bot' tweet profile.

Genuine viewers tweeting about the show contributed to most of the tweet volume. Behaviour patterns – as would be expected - ranged from casual users making a single tweet during the week to hardcore tweeters – and big fans of the X Factor - who were observed to tweet about the show at a rate of approximately one tweet per minute during the actual broadcasts. As also would be expected, most users seemed intent on broadcasting opinion and commentary about contestants and events as they emerged in the show, for instance:-

Wagner is apparently going to sing a mix of 'Spice Up Your Life' and 'La Vida Loca' tonight....god help us. #XFactor

Cheryl really did go crazy with the red hair dye. #xfactor

Analysis of the nature of these tweets will from a core part of our future work since as well as understand patterns and content of tweets themselves, we wish to begin to explore the *motivations* of individual tweeters. The understanding of user's motivations for engaging with Twitter *in general* is still a research topic [5]. In this case it is clear that users who tag their tweets with the #xfactor tag are classifying their tweets as relevant to the X Factor audience – and perhaps are wishing to influence the attitudes of co-viewers towards the show and its contestants. In terminology developed in [6], the users are constructing a networked audience to consume their tweets. The media experience for users changes from the conventional norm; rather than existing as a static viewer of broadcast media in a bipartite arrangement, a tripartite, dynamic relationship is formed between the broadcast media, the twittering audience and their networked audiences.

Overall, the convergence of Twitter and live TV appears to generate a powerful and engaging entertainment experience which to some tweeters is perhaps more fun than the TV show itself:

It's the twitter #xfactor channel that makes tv truly 3D. Love the backchat :)

*RT @*******: Twitter makes #xfactor so much funnier*

Perhaps most importantly however is that the implications of this emergent tripartite relationship for the broadcast industry themselves is still unknown.

Conclusions and Future Work

Our initial investigation into the twitter posts surrounding the UK TV programme The X Factor has revealed a number of findings: aggregate user behaviour shows similarity to other forms of social media usage, automated tweet bots are commonplace, individuals typically want to express opinion to their 'audience' following the #xfactor hashtag. The sheer volume of tweets we have witnessed in analyzing a single TV programme and the enthusiasm shown by users (in tweet content) to engage with TV through Twitter suggests that this emergent social media experience warrants urgent investigation. The implications for the broadcast industry alone are significant. Whereas hard disk recorders and online TV on demand services such as BBC iPlayer have negatively impacted the concept of mass shared experience of 'live' television, it is apparent that the Twitter activity we have witnessed has the potential to kick start a resurgence in this form of media experience. Additionally, Twitter has the obvious potential to inform the TV industry about user opinion; we note that the UK social media analysis company Brand Aura recently blogged about their sentiment analysis of UK X-Factor tweets [2] with the motivation of predicting the winner of the competition.

Our own future work will go on to look in detail at the nature of tweet communications surrounding live TV experiences, the content of the messages and postings and how such social media applications might be best structured to deliver social co-viewing experiences. In the future we expect the broadcast and advertising industries to attempt to influence and steer these experiences themselves and our research will aim to inform such developments.

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