TV Ratings vs. Social Media Engagement: Big Social Data Analytics of the Scandinavian TV Talk Show Skavlan

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***Abstract*—This paper explores the relationship between TV viewership ratings for Scandinavian's most popular talk show, Skavlan and public opinions expressed on its Facebook page. The research aim is to examine whether the activity on social media affects the number of viewers per episode of Skavlan, how the viewers are affected by discussions on the Talk Show, and whether this creates debate on social media afterwards. By analyzing TV viewer ratings of Skavlan talk show, Facebook activity and text classification of Facebook posts and comments with respect to type of emotions and brand sentiment, this paper identifes patterns in the users' real-world and digital world behaviour.**

***Index Terms*—Television Viewer Behaviour, Skavlan Talk Show, Big Social Data, Facebook, Big Data Analytics, Text Classification, Social Set Analysis**

I. Introduction

TV shows can use social media in several ways to promote their show by advertising upcoming episodes through posts or by sharing clips from the shows. In addition, viewers can actively participate by sharing their impressions and reviews after watching an episode or share their expectations beforehand, which other viewers can respond to in real time. Comments, shares and likes on social media may direct other people's attention to the show and thereby increase the interest of the TV show. The participation on social media can also be seen as a contributor to the public sphere as people get to express their thoughts and feelings and thereby contribute to the discussion that originated from the TV show. This main purpose of this research is to take a closer look at the activity on FB in relation to the numbers of viewers of a TV show by conducting visual and text analysis of the business and social data.

The TV show that has been chosen for this research is one of the most popular talk shows in Norway and Sweden, which is called Skavlan Talk Show (Skavlan). It is shown at the best airtime in both countries and are viewed by over 2 million people on average. Skavlan is hosted by the famous Norwegian journalist Fredrik Skavlan and produced by Monkberry AS which is owned by Fredrik Skavlan himself [1]. The show offers interviews with some of the world's most well-known personalities in the commercial, social and political worlds. The interviews address topics and people of current interest, as well as questioning controversial events and statements that have taken place in society, which sometimes cause debates after the show, most of which is related to the criticism of Fredrik Skavlan's interview technique. The most recent major criticism the talk show received was after the interview of a Swedish right-wing politician who has been getting large media attention in both Sweden and Norway for his party's extreme immigration policy [2], [3].

A. Research Question

The aim of this research work is to examine whether the activity on social media affects the number of viewers per episode of Skavlan, but also how the viewers are affected by discussions on the Talk Show, and whether this creates debate on social media afterwards. Based on this, we seek to answer the following research question:

> *What type of relationship exists between activity on Skavlan's FB wall (likes, shares, comments) and the number of viewers per episode?*

To answer this research question we will look closer into selected events, or episodes, that particularly stand out in terms of viewing figures and FB activity and examine how the selected events help describe the relationship between activity on the FB wall of Skavlan and the number of viewers per episode.

The outline of this paper is as follows; Sec. II contains the theoretical concepts that supports the understanding of the problem formulation and research question. In sec. III, we provide a brief overview of related work, where in the Sec. IV, the methodology is presented with more in-depth explanation of the procedure of the entire data analysis process, from data collection to the actual analytics. Sec. VI provides an overview of results, divided into meaningful facts, actionable insights and valuable outcomes. Finally in Sec. VIII, we conclude the paper and provide directions into future research.

II. Conceptual Framework

A. Cultivation Theory

According to cultivation theory, the television plays a great role in socialisation and everyday information sharing independent of what culture people belong to, which have a great

impact on how we see the world [4]. Education and religion had previously a greater influence on social trends, however, now the television is a major source of story, images and messages sharing. The story telling has always been a part of the human life and from ancient times stories used to be told old face to face from one person to another. That is different from the mass consumption of stories we receive through televisions' news, drama, and advertising today caused by the television accessibility and availability to the masses. Stories shape the way the society perceives things and the way we think and relate to objects, which is important to consider, as most of the realities created on the television are not based on real facts but on speculations. Thus, cultivation theory implies that exposure to television, over time, affects the viewers' perception of reality. The more television you watch, the more likely you are to perceive the social world as resembling the world illustrated on television, in terms of the most common and recurrent messages of the TV world.

B. Dual Screening

Dual screening is the act of using another electronic device while watching TV, or to put it differently, the act of watching one screen by holding another. The shift from the traditional television watching towards dual screening is due to the rise of digital technology and the increase of internet-enabled devices, such as smartphones, tablets, and laptops [5]. stresses that dual screening can be used as an opportunity for marketers to promote their goods as dual screen interactivity shows that an increased level of engagement correlates with increased commercial effectiveness. They also argue that previous research of dual screening by [6] has contributed with findings such as increased Twitter (an online social networking service) activity increases television rating and that TV shows with higher ratings attracted more Twitter engagement. Thus, that is seems to be a correlation between ratings and activity on Twitter. In addition, according to Hajli [7] the interaction with social media while watching television has a positive impact on overall levels of program engagement.

C. Social Business

A Social Business is an organization that strategically engages, analysis, and manages social media to structure organizational processes and support organizational functions in order to realize operational efficiencies, generate comparative advantages, and create value for customers, shareholders, and other societal stakeholders' [8]. According to Vatrapu, there are three critical aspects of social business: social media engagement, social media analytics and social media management. Social Media Engagement: Social media engagement involves a company's strategic use of social media channels to interact with internal and external stakeholders in order to conduct knowledge management, marketing, customer support and product development [8]. Social media engagement of an organization should be based on social media strategy aligned with the overall corporate organization. Marketing communication is often the primary purpose of adopting social media engagements in organizational contexts. Thus, practitioners need to grasp the different phases consumers go through before they make a purchase. This work will not focus on classifying viewers in the different phases of the purchasing decision process, but of interest is to look further into the affective stage in terms of what emotions, attitudes and brand sentiments are created on Facebook in debates following TV shows. The role of emotions will be elaborated on further in the next subsection.

Social Media Analytics: Social media analytics concern collection, storage, analysis and reporting of social data deriving from the social media engagement of and social media conversation about the organization [8]. Social media generates enormous amounts of data which is highly unstructured and popularly called big data. There are various challenges to leveraging social data for business purposes, in terms of technological, scientific, operational and managerial issues, as well as training deficiencies. Especially the task of extracting meaningful and actionable information in a timely manner, due to the unstructured nature of the data, proves challenging for many organizations. There are also critical challenges with how social data can be combined and integrated with the existing data of an organization and the relevance of social data on key performance indicators.

Social Media Management: The third and last critical component of social business, social media management, focuses on the operational issues, managerial challenges and comparative advantages [8]. Social media management is based on a relational perspective of a firm's competitive advantages instead of the traditional resource-based view. Thus, a focus on management of social media activity by consumers can be a great source of competitive advantage, compared to the more typical sources of competitive advantages as put forward by economic theory.

D. Conceptual Model of Social Data

Social media platforms such as Facebook allow for interactions between individuals and (a) technologies, and (b) other individuals. These interactions are labelled socio-technical interactions and results in a trace data termed *social data* [9]. Mukkamala et al. (2014) offers a model that help structure and understand activity extracted from social media. According to the conceptual model of social data, social data can be distinguished between two types, namely (i) Social Graph and (ii) Social Text. Social graph consists of the structure of the relationships emerging from the appropriation of social media affordances such as posting, linking, tagging, sharing, liking etc. It focuses on identifying the actors involved, the actions they take, the activities they undertake, and the artefacts they create and interact with. Social text consists of the communicative and linguistic aspects of the social media interaction such as the topics discussed, keywords mentioned, pronouns used and sentiments expressed [9].

In our Social Graph analysis, the main object is to quantify the type of actions, activities and artefacts of the identified actors. The activity produced by Skavlan and other Facebook

users are studied as a whole, and the actors involved will therefor not be divided into two groups. The Social Text analysis is the more qualitative part of the social data analysis, where the topics and keywords of the text are identified. We categorize extracted comments from text according to sentiment. Sentiment analysis classifies text into positive, negative and neutral categories, and enables an analysis of actors' opinion [10]. In this part of the analysis, a separation between actors is necessary in order to make inference of the discussion that takes place on Facebook after an episode. Posts, comments and "commentreplies" made by Skavlan will be separated from posts, comments and "commentreplies" made by the general public. To further nuance the analysis of the social text and to enable inference about attitudes and feelings in the extracted text from Facebook, we also perform an analysis of emotion in the text. The emotions used in this analysis is Ekman's 6 basic emotions consisting of fear, anger, sadness, disgust, surprise and joy [11].

The sentiment and emotions of the extracted text have been identified by the means of text classification. We built a classifier for the purpose of detecting sentiment and emotions by manually training the classifier by labelling 5000 Norwegian and 5000 Swedish according to five models: Basic emotions, personality traits, consumer decision-making process stages and brand sentiment. "Supervised learning techniques have the disadvantage that large annotated datasets are required for training. Since the emotional interpretations of a text can be highly subjective, more than one annotator is needed, and this makes the process of the annotation very time consuming and expensive" [12].

The study of how emotions arise and what the effects of emotions are, is of great importance in many fields, such as marketing. According to communicative theory of emotions by Oatley and Johnson-Laird [13], [14], events are evaluated in relation to a person's goals and emotions function to manage responses to events, thus-self regulating goals from ongoing to new activities or to maintain desired states or activities. Positive emotions (e.g., happiness and joy) are associated with the attainment of a (sub)goal, which usually leads to a decision to continue with the plan. Negative emotions (e.g., frustration, anger, disappointment) result from problems with ongoing plans and failures to achieve desired goals. When we experience these latter form of emotions, we are in disequilibrium and actions are changed to return to normal state or achieve a higher desired state. Thus, emotions have implications for action and goal attainment.

E. Crisis Management

Crises arises from unexpected events, which may have a negative effect on the company's reputation and trigger negative reactions from stakeholders [15]–[17]. It is therefore important for the company to try to limit these damages. Social media can have a great impact on the development of a crisis but can also be the origin of the crisis, a so called social media crisis. There are three types of social media crisis:

1) The organisational misuse of social media crisis - the consequence of an organization's misuse of the commonly expected behaviour on a media channel. The effects of the crisis can easily increase if this misuse is seen as an intentional action of the company.
2) Dissatisfied customer - arises when customers express their dissatisfaction on social media and can become especially harmful for the organisation when many customers report the same problem.
3) Challenges - meaning that the behaviour or policies of the organisation is inappropriate according to its' stakeholder which may harm the organisation's valuable reputation.

These crises need to be dealt with in order to minimise the negative effects of the crisis, which is the overall purpose of crisis management. Effective crisis management is adapted to the crisis' different stages where different actions may be needed. These stages are known as pre-crisis, crisis event, and post-crisis. One way of managing a crisis is to communicate to the public during all of the crisis stages. A quick response is important as it fills the information gap after a negative event. In addition, the communication should be consistent as it makes people believe the information is more reliable and without any contradictions. Quick responses, consistency, and openness are all essential to reduce the negative impacts that a crisis can bring.

III. Related Work

[18] investigated the relationship between television, its audiences and social media around the creation of social TV events. The study applied a quantitative approach, measuring the volume of Twitter messages before, during and after two different types of television programmes, i.e. Reality TV and sports broadcasts, as well as a brief comparisons including data collected from Facebook. Thus, similar to us they used social media data to investigate behaviour [18]. The study found that there was a trend showing key activity both during and towards the end of a broadcast, i.e. that viewers used Twitter, or Facebook, while watching the event [18]. Although their main focus was on Twitter data, the comparison with Facebook showing similar patterns indicates that this could also be true for our data.

Lunt & Stenner [19], discuss in their article that the interaction on talk shows and discussion of the broader social significance of talk on television. The study is based on Habermas' conception of the rational critical public sphere. Habermas defines the public sphere as a space mediating between the state and the civic society where such a thing as public opinion can be formed. The bourgeois public sphere is the phenomenon where private people go together and openly discuss public authorities about relevant matters. This has created a new civil society driven by the need for open commercial arenas where news and matters of common concern can freely be exchanged and discussed. Lunt and Stenner [19] concludes that there are several parallels between Habermas' proposal and features of the poular US talk show, Jerry Springer Show, including that the TV show combines some of the elements of emotional

engagement, excitability and interest that has its origin in the cultural public sphere, with some of the criticisms of rational critical discussion that are characteristic of the political public sphere. They also argue that the talk show genres emerge as a context for public participation and debate where voices of people usually excluded from the media are free to express themselves. In contradiction to Skavlan, the guests of The Jerry Springer Show are private people where the audience are free to express their opinions on the topics covered in the show.

Regarding text analytics and visual analytics of big social data, [20] monitored infectious diseases. Especially Facebook has been used in recent years to express opinions through comments, posts, likes and shares. The collection and analysis of these data for conducting event studies has been accomplished in many studies before, including an analysis of the interaction of two fan bases on crowdsourcing with the companies before, during and after a product was launched was conducted [21]. In relation to the power of emotions [22] have made a study of the role of emotions in participation in political elections and debates. They conducted three studies and found that across these three, the strongest finding was the consistent positive impact on anger on political participation, and thus actions. Anger in politics can play a particularly vital role, motivating some people to participate in ways they might ordinarily not. Thus, bringing to life emotions, and the dynamic processes by which they are produced in each campaign, may powerfully alter electoral outcomes. Furthermore the study of *Emotions from text: machine learning for text-based emotion prediction* [23] focuses on the examination and classification of emotional content of 22 fairy tales shows by using supervised machine learning. This shows, that supervised machine learning can be used in different contexts and for different sources, including Facebook comments like in our study.

IV. Methodology

A. Case Company Description

Skavlan is a continuance of the Norwegian talk show *Fi£¡rst og sist*, broadcasted by the Norwegian Broadcasting Corporation (NRK) since 1998 [24]. The talk show with Fredrik Skavlan grew influence and was introduced as the same talk show under the new name, Skavlan, in 2009, this time recorded in the studios of Sveriges Television (SVT) as a production mainly for the Swedish audience, however, with rerun broadcasted on NRK for the Norwegian audience [1]. From the 2nd season of Skavlan, NRK and SVT produced the talk show in corporation for both Swedish and Norwegian audiences. Since 2010, Skavlan has been produced by Monkberry, a company which is owned by Fredrik Skavlan himself. Skavlan has grown into the position of Scandinavia's most popular talk show [1] with interview objects ranging from both Scandinavian and international movie stars, artists and athletes, to international political leaders and other important personalities.

NRK is state-owned and is mainly financed by a compulsory license fee paid by Norwegian citizens [25]. SVT is not owned by the state, rather it is structured as a limited company owned by a foundation and financed by a compulsory license fee, in the same way as NRK. Both NRK and SVT serves to be politically and commercially independent [26].

Skavlan's page on Facebook is called *Skavlan Talkshow*, and per 29th of November 2015 it has 28 293 followers [27]. Only posts by admin are published on the wall and followers can like, share, or comment on the posts. The posts of followers, other Facebook users and Facebook pages are collected in an archive in the margin of the page, called *Visitor posts*, free for anyone to see. Posts where Skavlan is tagged also end up here. Based on our observations, Skavlan usually publish posts on its wall 2-3 days in advance of every episode to promote it. Occasionally they also post after each post to ask for people's thoughts about the episode. There are also other posts that are published on a continuous basis, unrelated to episodes, promoting Skavlan's podcasts and regular competitions.

B. Data Analysis Process

Our data analysis process is shown in Figure 1. According to Cioffi-Revilla [28] data mining is a methodological process containing a sequence of stages or phases. Therefore, it is not a set of activities that can be performed in an arbitrary order. A common data analysis process commence with formulation of research questions, data collection, processing of data and ends with communication of results. The methodological process is often repeated from top to bottom, as communication of results often leads to the development of new research questions and suggestions for future work.

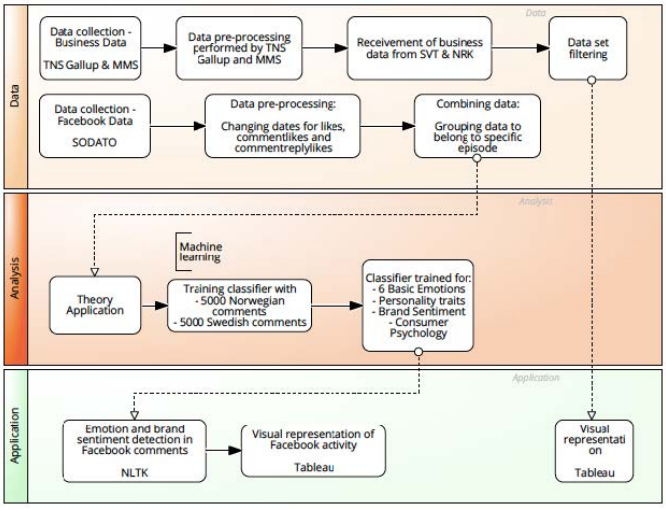

Figure 1. Data Analysis Process Diagram

As part of the methodology we have applied machine learning algorithms for the text classification of the Facebook text corpus containing posts and comments (mostly written in the Norwegian Language) from both the walls. Text classification approach is a supervised machine learning technique and it can be defined as a process where assigning a predefined category of labels to new documents based on probabilistic measure of likelihood using a training set of labelled documents [29]. Out

of several approaches available in text classification domain, we have chosen a simple text classification method [30] based on Bayes rule that relies on a simple representation of documents using bag of words approach. For the text classification. The authors have manually coded around 24,000 Norwegian texts from Facebook post and comments against two different models: *Basic Emotions* and *Brand Sentiment*. As part of *Basic Emotions*, we have used 6 different labels: *Anger, Disgust, Fear, Joy, Sadness, Surprise* to classify the texts, where as for *Brand Sentiment*, we have used standard sentiment labels: *Positive, Negative and Neutral*. All the manually encoded texts with the respective labels for the models have used to train the classifier using Natural Language Toolkit (NLTK) [31] using Python programming language.

V. Data Collection

Norwegian viewing figures are collected by a market analysis bureau, called TNS Gallup, which conducts data collection, data pre-processing and analysis within most market related areas [32]. In Sweden it is the company Mediamï£¡tning i Skandinavien (MMS) who is responsible for measuring the viewing figures of Swedish viewers [33]. The collection of viewing figures is similar for both companies and is based on electronic TV meters installed in a sample of households called the panel [32], [33]. The panel is geographically and demographically proportional, and TV-consumption-wise representative for private households and their members. The panel consists of minimum 1,000 households and is supposed to give a representative picture of the viewing behaviour in private households at all times. The data coming from the panel households is on a daily basis put through a series of validation and control routines before the final TV data is reported. The purpose with the validation is to achieve the most accurate viewing data on individual and minute level. TNS and MMS use a set of sophisticated procedures for processing, validation and editing to secure that TV seeing is correctly identified per channel and per panel member. They also perform various quality controls to detect unreliable data, such as uncovered seeing (the TV set has been on, but no one has registered as viewer), zero seeing (long period without TV seeing), extreme seeing (high level of total TV seeing during the day).

Social data from Facebook is collected through SODATO from January 2012 to October 2015. SODATO collects, stores, analyses and reports big social data resulting from the social media engagement of and social media conversations about organizations [34].

A. Data Pre-Processing, Transformation and Combination

Before analysing the business data, we removed information from the datasets, such as length of broadcasted show and time when broadcasted etc. This was not only because the information was irrelevant for the purpose of our analysis, but also in order to make the two datasets comparable. Furthermore, we combined the information in the two datasets in order to make them more comparable. This was achieved by grouping figures and market share-counts for first broadcast pFacebooklus 7 days recording, and first broadcast recordings, separately. The datasets were combined by only extracting the figures that were identical across the two datasets. Furthermore, numbers for the 3rd episode broadcasted for SVT were manually plotted by using additional information given by SVT, as this information was not included in the first data set provided by SVT. We also removed episode 34 from the datasets, as there was no information included of 7 days recording, thereby only information for first broadcast.

As outlined in the data set limitationa for social data, the absent timestamps for "postlikes", "commentlikes" and "commentreplylikes" were manually imputed in order to make the data a better representation of reality. Furthermore, in order to gather information of Facebook activity relative to ratings for each episode, the Facebook data were grouped as to belong to its weekly broadcasted episode. After studying the Facebook wall of Skavlan we observed that Skavlan mostly made a post, promoting the upcoming show, from Wednesday to Friday in the same week as the Friday night broadcast. Thus, the time period for Facebook activity belonging to a specific episode range from the Wednesday the same week the episode is broadcasted, until Tuesday after the broadcasted episode. The Facebook activity within this time period were grouped, resulting in a total of 24 weekly intervals with Facebook data. A limitation with this method of combining Facebook data is that activity belonging to a specific episode, however performed later than the specified time period, fall in under activity for a different episode. The idea behind the way of grouping the Facebook data is that the majority of artefacts happen within this time frame, rather than after. There are, however, some posts made by Skavlan within these time intervals that are unrelated to the upcoming episode.

After classifying the total social data set after emotion and sentiment, we found that an unmoral high amount of comments was labelled with the emotion fear. For purpose of the analysis, fear was removed, as this emotion was regarded as distorting the results. Furthermore, the emotion fear does represent different meaning across the two events we focus our analysis on.

VI. Results and Findings

We will start this section by giving a visual overview of viewing figures and FB activity of the selected time period. Furthermore, we will highlight meaningful facts found for both overall viewing figures and social data for the whole time period. The following sections will take a closer look on the selected events from this overview, namely Episode 14 (E14) and Episode 18 (E18) due to their large amount viewing figures relative to other episodes, when combining NRK and SVT figures, and episode 20 (E20) for its low viewing figures. In addition, Episode 6 (E6) and Episode 24 (E24) are chosen, as they have attracted most attention on FB, as can be seen when looking at the FB-activity timeline.

A. Meaningful Facts

1) Age Group Distribution of Viewing Figures: The majority of Skavlan's audience is at the age of 50 and above, as illustrated by the grey and turquoise bars in the stacked bar chart below. The graph shows that, in general, the age-groups of 50 to 64, and 65+ stands for three fourths of the audience over the selected time-period. The number of viewers in the remaining age groups declines as the age decreases as shown in Fig. 2.

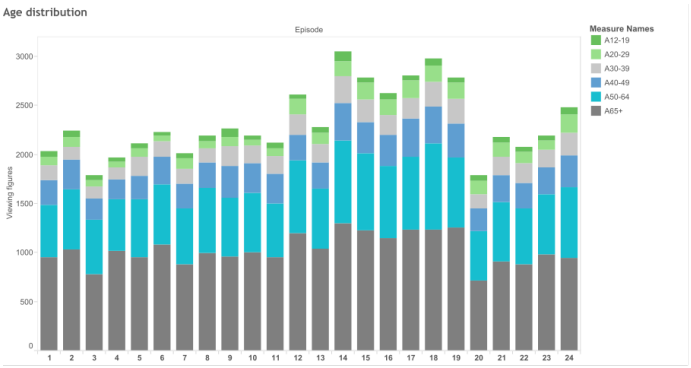

Figure 2. Viewers' age distribution live + 7 days recordings

2) Most Viewed Episodes: The Fig. 3 presents the differences in viewing figures for the two countries, which also shows that the variation in viewing figures is mainly due to the variation in the amount of Swedish viewers that fluctuates heavily during the period. The Norwegian viewing figures also vary, but are more stable in comparison. As illustrated in Fig. 3, what is reviewed as the two most popular episodes differ between the two countries; in Norway, E24 is most watched, whilst E14 is the second most popular episode. However, in Sweden, E18 is most watched, followed up by E14. When accumulating the viewing figures for the two channels, E18 is most popular, tightly followed by E14.

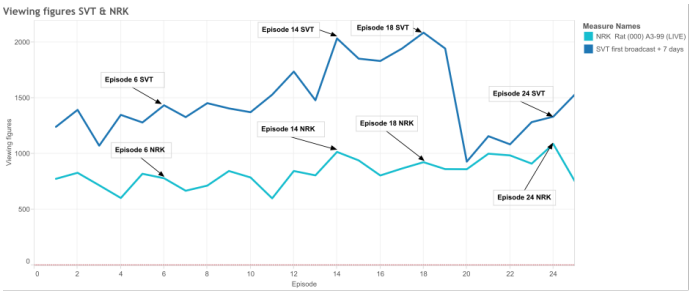

Figure 3. Viewing figures SVT & NRK

3) Most used Facebook Artefacts: Postlikes *and* Commentlikes*:* The entire Facebook activity during the selected time period divided into the various Facebook activity types, which includes post, "postlikes", comments, "commentlikes", "commentreplies" and lastly, "commentreplylikes". From Fig. 4, is that there seem to be a recurring pattern of an increase in activity on the days close to the episodes. The peaks of "postlikes" seem to occur within a weekly time interval as visualised below, and this makes sense as these "postlikes" are related to the post of the administration of Skavlan's FB page when they promote the upcoming episode.

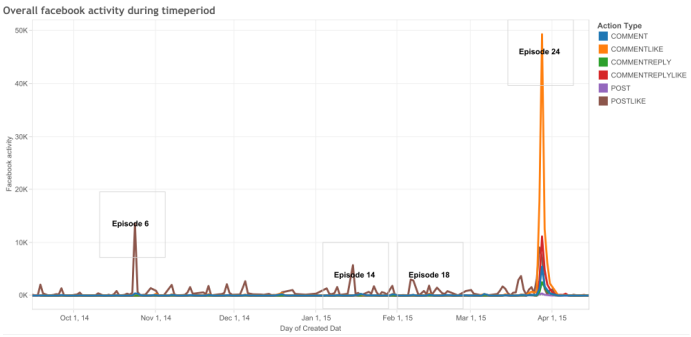

Figure 4. Overall Facebook Activity During Selected Time Period

Overall, the dominant activities are "postlikes" and "commentlikes", as better illustrated in the packed bubble chart presented below. The brown circles represent the "postlikes" per day in the time period and the orange circles are equal to the "commentlikes" per day. The size of the "bubbles" (circles) is shown in relation to the amount of the activity to the related day of the activities. However, as can be seen on the timeline in Fig. 4 there is one event, around the 27th of March, that in particular generates a large amount of activity. This is related to E24, the last episode of the season, where the controversial Swedish politician, Jimmie Åkesson, was interviewed.

4) Episodes with the Highest Facebook Activity: As shown in Fig. 5 above there are especially two events that stand out when it comes to overall FB activity in the time period in question, one more than the other. The most extreme of these happened around end of March 2015, which corresponds to E24 aired the 27th of March 2015. The other noteworthy peak in the figure happened towards the end of October 2014, after E6 was aired on the 24th of October 2014. From Fig. 5 we can see that the latter episode generates a large amount of "postlikes", while the first generates a huge amount of "commentlikes" as well as fairly large amounts of "commentreplylikes", comments and "commentreplies" compared to the rest of the episodes in the dataset.

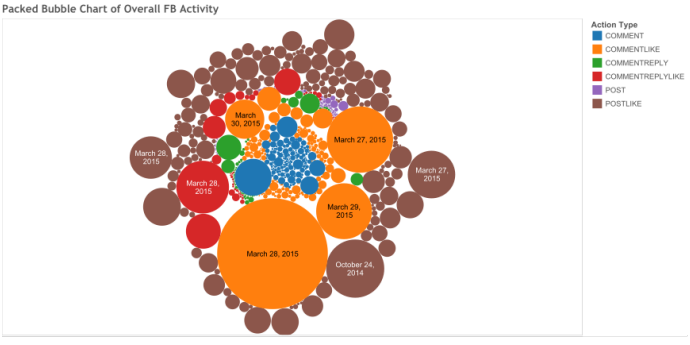

Figure 5. Packed Bubble Chart Showing Most used Artefacts

5) Facebook Activity versus Viewing Figures : In our research question we seek to explain an existing relationship

between viewing figures and activity on Skavlan's FB wall. If a positive relationship existed, we would expect to see higher FB activity around the time of these two events relative to the rest of the period. The time line showing the FB activity in relation to viewing figures (Fig. 6) does not imply that there is significantly higher activity in the periods where E14 and E18 were broadcasted; also, neither E6 nor E24 have significantly high view figures. As previously discussed, viewing figures may rather be influenced by other factors, such as competing TV shows on competing channels (see Appendix 4 for correlation between viewing figures and market share).

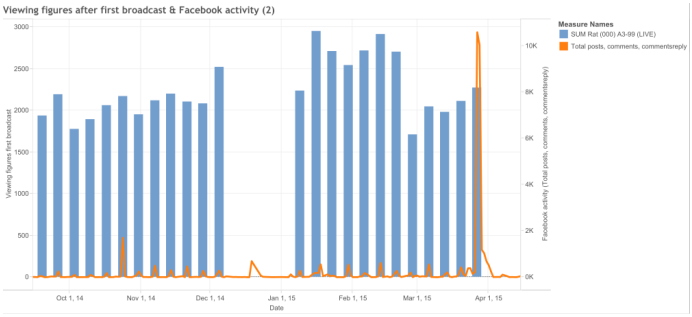

Figure 6. Viewing Figures After First Broadcast versus FB Activity

6) Sentiment Analysis of E24 and E6: A Majority of Negative sentiments were related to E24 where as majority of positive sentiment were related to episode E6. The episode E24 provoked a lot of negative reaction on Skavlan's FB wall right after the first broadcast as shown in Fig. 7. The negative reactions where both directed toward the TV show and Skavlan himself due to the interview he held with Jimmie Åkesson. In general, as previously mentioned, this episode created the highest amount of FB activity. In addition, the basic emotions

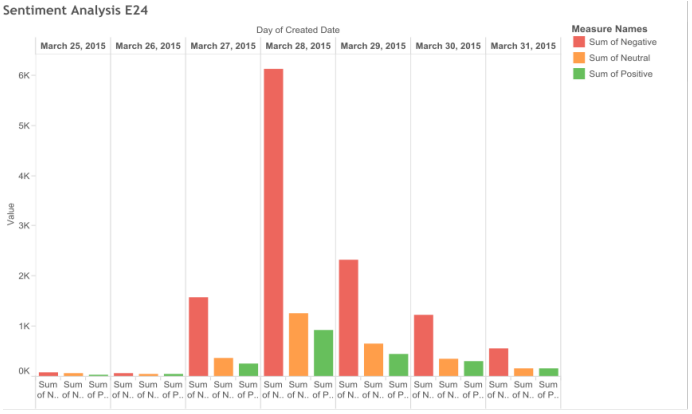

Figure 7. Sentiment Analysis of episode E-24

reveal the underlying tone in the comments the Facebook users have posted on the wall mainly reflect anger and disgust as shown in Fig. 8.

In comparison, the texts in the posts and comments related to E6 mainly reflect joy as shown in Fig. 9. On the other hand, E6 has equal number of positive and negative sentiments approximately, but the world cloud for the texts related to E6 reflects positively charged sentiment words.

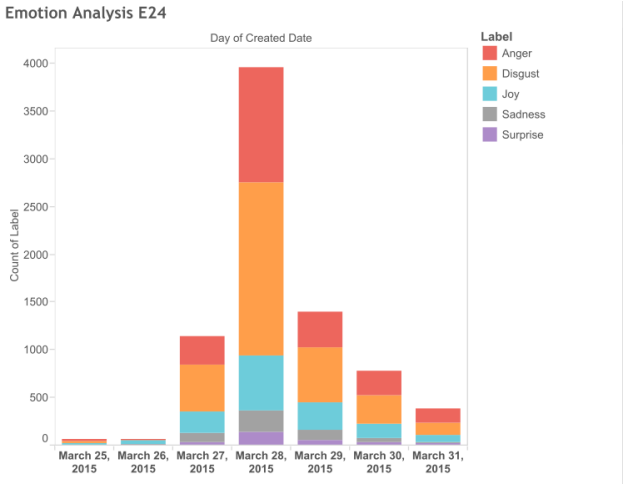

Figure 8. Emotion Analysis of episode E-24

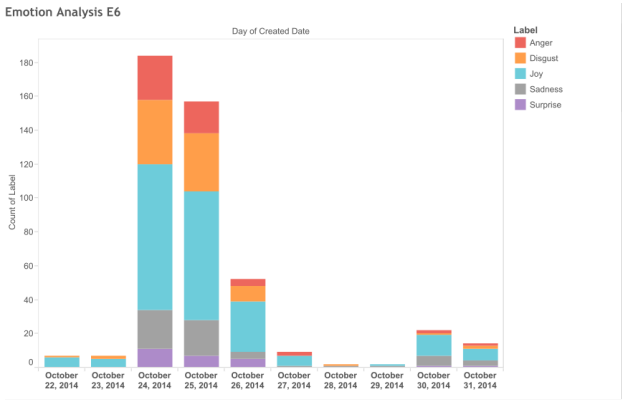

Figure 9. Emotion Analysis of episode E-6

7) No Relationship Between Viewing Figures and FB Data: Our analysis concludes that there is no regular relationship between activity on FB and viewing figures for the selected time period If a relationship existed we would expect to observe more activity on FB related to the most viewed episodes, a relationship that we have not been able to observe. On the other hand, the content of each episode may explain activity on FB, as FB may function as an arena for sharing public opinion regarding the themes that have been brought up during each episode. This relationship is however only clearly evident for E24, through the large debate generated after the broadcast. In addition, where E24 is the most discussed episode on FB, the episode does not point out as one of the most viewed episodes. The only observable relationship between the two data sets, if any, is that the reactions on FB after episode 24 creates more viewings during the 7 days of recordings after the first broadcast than for any other episode. Thus, large FB activity related to any specific episode may cause more viewing figures in the periods after the first broadcast of that episode. Furthermore, the non-existing relationship between viewing figures and FB activity may be influenced by the fact that the majority of viewers are in the age group of 50+, and that this age group may not be the most active on FB relative to

other age groups. Statistics over Swedish FB users show that only 35-50% of the population at the age of 56 and above are using FB in relation to 98% of the population between the ages of 16 to 25 [35]. In addition, older people are not using FB as frequently as the younger users. As mentioned above, the majority of Skavlan's audience are at the age of 50 and above. This may indicate one reason for why there is no correlation between the viewing figures and the activity on FB. Another factor that may better explain variation in viewing figures is the competition Skavlan receives from competing TV productions broadcasted at the same time as Skavlan.

B. Actionable Insights

Based on our study, we provide the following actionable insights in the case company's perspective.

1) Continue Doing More: Even though the FB activity does not seem to be related to the viewing figures, the posts the admin of Skavlan publishes to promote the upcoming show does create some activity on FB that indicates that it creates some sort of engagement from the FB users. Even though the most loyal audience are within the age-groups that, in relation to other age groups, are the one that are the least active on FB, these posts are an easy and cheap way of advertisement. It could also be used to draw the attention of the age groups that are currently not the major viewer group of Skavlan.

Another thing Skavlan should consider doing more of is continue to be controversial and create debate in social media in the aftermath of the episodes, like with the case of E24. As our analysis have shown, this attracts more viewers to see the show after it has been broadcasted on TV. The risk with doing this is that it may be beneficial only in the short run and may hurt the reputation of Skavlan in the long run. On the other hand, it does create more awareness around the show, as evidenced by 22 000 new active users (previously inactive) on Skavlan's FB wall shown by the Venn diagram above.

2) Do Differently: Skavlan may learn from the way they manage the reactions that followed the interview of Jimmie Åkesson in E24. A lot of the criticism Skavlan received after the interview also concerned the posts Skavlan made after the interview, stating the size of the engagement from FB users and pointing towards that the engagement, coming from both viewers who found the interview well performed as well as the FB users that strongly disagreed with how the interview was conducted, concluding that the interview classified as both balanced and interesting. According to crisis management, communication should be performed pre-, during, and post-crisis. Skavlan could arguably have foreseen the negative response to come after the interview, and in this way prepare the viewers of the interview to come. However, it could be argued that Skavlan could have done more to respond to the criticism. In addition to the activity on FB, which have been classified as being of mostly negative content, the Norwegian Broadcasting Council also received over 3000 complaints of how the interview was conducted [36]. Independent of how the criticism was handled by Skavlan, the large debate may not characterize as a social media crisis. Rather, the attention on both social media and in general media may be regarded as positive, at least in the short term.

3) Start Doing New: If Skavlan were to change its concepts in the future, Skavlan could take advantage of social media channels such as FB and Twitter, and by the use of these, promote dual screening during the broadcast in terms of including the viewers in the show. This would however change the concept of the talk show towards a more interactive show that are dependent on its viewers' engagement. This concept would however demand a live broadcast, which again may put restrictions on the guests the show is able to host as Skavlan loses its freedom to make recordings of episodes whenever it suits its guests.

C. Stop Doing Old

In the long-term, Skavlan could possibly benefit from better aligning its performance with the expectations of the viewers. A study of what kind of interview objects the audience find more interesting may lay a foundation for where Skavlan should position itself in the future. As the negative reactions after E24 may have been caused due to a gap between the what the viewers expected of the episode and the perceived quality of the product they received, a more distinct talk show profile may be beneficial.

D. Do Not Do Ever

The general audience may expect Skavlan to be objective when conducting his interviews, and in this way not express subjective opinions on matters discussed. Pre-made expectations of Skavlan's role during an interview may also be cause of the major debate after E24, with Jimmie Åkesson. Failure to behave according to the general public's expectations may weaken Skavlan's integrity and position as a respected interviewer.

E. Valuable Outcomes

In the short-term, our analysis gives indications of that causing negative reactions through controversial interviews may be beneficial, at least if both social media and general media attention is regarded important for brand exposure. As we have shown, social media debate has been beneficial in terms of count of viewing figures after the first broadcast. This may not only be caused by social media, as the conventional media may also have contributed to more viewing figures.

In the long term, however, negative attention of the same level as Skavlan experienced after E24, may be damaging towards the Skavlan brand, if negative attention results in loss of viewers. As the show is broadcasted prime air time, Friday night, the competition of keeping market shares high during broadcast is arguably fierce.

VII. Discussion

A. Conceptual Interpretation of the Findings

According to Habermas, public sphere is a space where private opinions are shared and public opinions are formed. As we have seen, E24 created a lot of debate on Skavlan's wall in

the aftermath of the show, discussing both Fredrik Skalvan's interview technique and the interview object's politics. This suggests that FB is an arena for people to share their opinions. According to Johannessen (2013), FB and other online spaces, such as Twitter and blogs "gather individuals who discuss political issues, spread ideas and seek support for their views on society". This is exactly what we saw in relation to E24 where a lot of people engaged in sharing their opinion about the show in social media; some of them supporting Skavlan, other supporting Jimmie ï£¡kesson. Thus, depending on the content of the show, Skavlan creates debate and FB is the arena where the public participates in the debate.

Furthermore, according to cultivation theory, the television plays a great role in socialisation and everyday information sharing, which have a great impact on how we perceive the world [4]. Skavlan offers interviews with some of the world's most well known personalities in the commercial, social and political world - often people with a great influence in the society. An example of Skavlan contributing to influence people's perception of the world can be seen through E24. Jimmie ï£¡kesson is a controversial political figure, famous for his party's strict immigration policies and extreme statements towards immigrants in public media. After Skavlan's E24, judging from the comments on FB, a fairly large proportion felt that ï£¡kesson was treated poorly and a lot of people felt sorry for him. Thus, in this way this episode in particular may have contributed to more support for ï£¡kesson and his controversial party SD, which emphasizes the power of television on people's perception. This latter point can be drawn on in relation to the power of emotions. According to our conceptual framework, negative emotions arise whenever an individual evaluates and event as goal incongruent in which ongoing plans fail to achieve desired goals [14]. This represent being in a mental state of disequilibrium, and actions are changed to return to normal state or achieve a higher desired state. In relation to E24 a lot of people thought that ï£¡kesson was treated poorly, thus in opposing their desired goals and expectations, which resulted with a lot of them releasing negative emotions towards Skavlan in order to restore the normal state. The episode in question also serves to support the phenomenon found by Valentino et. al. [22] in their study of the impact of emotions on political participation. According to them, negative emotions like anger and disgust have a positive impact on political participation. Comparing E24 with E6, which generated more positive emotions, the engagement in social media was far greater after E24 than E6.

We find that viewing figures seem to be influenced by other factors such as competing broadcasts, rather than activity on FB. The only relationship that is evident when looking at activity on Skavlan's FB wall and Skavlan's viewing figures is that large debates on FB and attention in conventional media in general, may cause more viewing figures in the periods after the first broadcast. As outlined in the previous section, the lack of existing relationship may also be influenced by the fact that the majority of viewers are in the age of 50+, whereas the same age group is not the most active FB user segment.

Regarding limitations, the time period for studying the relationship may be too short to make interesting inference of any relationship between viewing figures and FB activity.

VIII. Conclusion

This research work attempts to arrive at meaningful facts, actionable insights and valuable outcomes from investigating what type of relationship that exists between viewing figures of Skavlan, broadcasted in Norway and Sweden, and FB activity on Skavlan's FB page. This has been done by conducting a visual analysis of viewing figures, FB activity, and text classification of FB comments with respect to type of emotions and brand sentiment, in order to reveal any patterns. The analysis has been delimited to focus on particular episodes that stand out with respect to viewing figures and FB activity.

The analysis shows that there is no clear relationship between the viewing figures and FB activity on Skavlan's wall in terms of particular correlations within our time period. The most viewed episodes were not the ones with the highest amount of FB activity on Skavlan's wall; and the episode with the most activity on FB was not the one with the highest viewing figures, aggregated for both countries. This emphasizes the point made by Vatrapu's [8] concept of "Understanding Social Business" that levering social data for business purposes in a timely manner can be challenging due to the unstructured nature of the data. Finding ways of how to effectively combine discrete social data with continuous business data can also be challenging. With that being said, the analysis provided several meaningful findings that can be of value for the Skavlan production. The most valuable finding is that the episode that created a lot of negative debate in social media attracted more people to view the episode after it had been broadcasted. Also, this episode stresses the formation of FB pages as public spheres where people share their private opinions.

Among our recommendations to Skavlan we suggest that they consider what kind of talk show they want to be and stay within the expectations of the chosen profile. They should also determine what kind of debate they want to spur in social media and investigate further the content of debates followed by episodes, which can guide them in choosing who to invite to the show.

A. Future Work

For future work, we suggest that an investigation should include FB activity from more than one FB wall. For example, the activity of similar TV shows could be compared in order to generate greater evidence of an existing or non-existing relationship. Furthermore, the debate from various walls could be compared to establish inference of whether the debate is related to the interviewer's performance, the interview objects or the debated topics.

In the case of investigating FB on Skavlan's wall, an event study for each episode could have been performed in order to see how the FB users debate changes from the period before broadcast, what debate is created during the broadcast and

what the content of the debate is after the broadcast. In relation to this, it could be interesting to go deeper into the content of the debates, focusing on more factors than only emotions and brand sentiment, and draw inference of which interview objects create what kind of debate. This can be of aid to the Skavlan production in their choice of interview objects as to what kind of debate they want to stimulate.

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