BRAND INFLUENCE ONLINE: CROSS-PLATFORM SOCIAL NETWORK ANALYSIS ON THE
ENABLEMENT OF EFFECTIVE BRAND COMMUNITIES

by

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Abstract

This paper aims to provide a systematic methodological approach for online brand community assessment across multiple social networking platforms. Analysis of influential brands was conducted utilizing a social network analysis (SNA) perspective. Brand communities were scored based on network properties and content analysis. Background research provided a framework of recommended community enablement strategies to determine what type of content and approach is most conducive to brand community proliferation.

Based on network analysis and on congruency of following academically suggested community enablement triggers and behavioural dimensions, it was determined that the most effective brand at enabling community across all platforms within the study was Yeti Coolers. Instagram was the focal platform providing engaging content to be shared across networks.

Keywords

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1.   **Background**

1.1.   **Influence, networked influence and brands**

The traditional study of social influence is largely based on the work of Katz and Lazarsfeld (1955), which implies that opinions are formed by opinion leaders based on the mass media they consume and interpret. The opinion leader - referred to herein as an "influential" person or "user" in a digital context - then spreads their opinions and views throughout the community to their opinion followers in a gregarious fashion. Opinion followers are those whose thoughts, views, opinions or actions are formulated based on the strong tie the user feels with the influential user. As noted by numerous recent studies on online influence, these traditional observations are perpetual aspects of influence; they have transcended time and technological advancements (Batinic & Appel, 2013; Gruzd & Wellman, 2014; Dubois & Gaffney, 2014; Xu, Sang, Blasiola and Park, 2014). Within the context of an online community, the effect of influential users and their activity within the community, are still apparent, observable and significant.

In a traditional sense, the mass media, along with the interpretation of the local opinion leaders who propagate their own opinions, has been the driving force behind community sentiment. The attention modern society expresses has seemingly shifted away from traditional mass media outlets - such as television and radio - and now lies within networked devices such as smartphones and computers. As a result of the change in medium in which media is consumed, social media communication platforms have been embraced by marketers serving a variety of marketing objectives including branding, research, customer relationship management, service and sales promotions (Ashley & Tuten, 2015). Brands have recognized these changes in consumer behavior and attempt to influence and enable groups of social media users to become centered on the brand or brand message via online social networking platforms.

Social networking platforms have created new forms of community. Numerous studies have shown that these digital communities are not inherently formed by strong personal face-to-face or localized friendships; they occur online independent of space, time and former relationships between individuals (Gruzd & Haythornwaite, 2013; Gruzd & Wellman, 2014). In the perspective of global brands, it is evident that groupings of consumers have moved online, and now over 50 percent of the top 100

global brands have an online brand community (Dessart, Veloutsou & Morgan-Thomas, 2015; Manchanda et al., 2012). These communities exist across a wide range of online communication networks and platforms.

Since brands attempt to influence consumers and spread their messages across multiple social media platforms it is important for researchers to adapt an approach which accounts for the differences in functionality within each specific platform. Goggins and Petakovic (2014), suggests, measuring influence and the effects influential users have within a social networking platform requires that studies incorporate a systematic methodological approach to help explain how people engage with a particular platform and within brand communities on each platform. This study aims to utilize a systematic methodological approach in the analysis of physical characteristics of brand community networks across multiple social networking platforms: Facebook, Twitter and Instagram.

1.2.   Social network analysis: interpreting network structure

This report attempts to analyze brands and brand communities across multiple social platforms using a systematic social network analysis method. As suggested by Gruzd & Wellman (2015), in order to be effective in this analysis, the researcher has adopted a platform, domain, and context specific approach. In other words, this report will examine brands and brand communities on an individual platform basis, then compare the results across platforms to observe if any recognizable patterns, deviations, or outliers arise. This report attempts to identify effective brand communities and compare the strategies various brands utilize to enable their communities. Before the features of individual platforms are explored, it is important first to identify how current academic research explicates and explains social network structure itself.

To compare one network to another on an empirical level, ***social network analysis*** needs to be conducted. Social network analysis provides a perspective and method for inquiring into the structures that comprise online groups and communities (Gruzd & Haythornwaite, 2013). This allows researchers to

understand how community is formed and maintained online. According to Gruzd & Haythornthwaite, (2013), analysis of social networks can be derived from **graph theory** where actors (people, organizations, brands, etc.,) are "**nodes**" in a network, connected by their relations (the actions which connect users such as a "like" or "comment") that form interpersonal "**ties**" or edges within the network. The network which is formed by these nodes and ties is known as a **name network.** A name network is a communication network which captures replies, reposts, and mentions within a social media platform. Name network size can be determined by the number of nodes, number of ties and number of names found within the network. Network size is important to consider when comparing networks as comparing networks of varying sizes may lead to ineffective comparative analysis. The prominence of an individual can be observed and measured based on their interconnected ties to and from other actors. The diameter of the network and density of a clique or niche network can be high or low which results in rapid or slow diffusion of information. Similarly, the measurement of network properties such as reciprocity, modularity, and centralization, can describe how the communication within the network is structured; whether conversations are occurring between users, or if a few focal users tend to dominate conversation.

Interconnectedness of nodes (people, organizations, brands, etc.) is a measurement metric which is commonly referred to as "**degree centrality**". In simplest terms, degree centrality is the number of ties a node has. In many social media platforms there is direction associated with centrality breaking it down further. According to Gruzd & Haythornthwaite, (2013), "*In-degree centrality*" is the number of incoming ties a node has. An example of in-degree centrality is the number of times a person is mentioned in a tweet. "*Out-degree centrality*" is the number of outbound ties a node has. An example of out-degree would be the number of times someone mentions someone else in a tweet. In observing social networks and influence within them, degree centrality is an important metric to consider in both the posting behavior and in the relationships between follower networks. Degree centrality tends to focus on specific users and their role within networks; structural properties of the network itself must also be examined to understand how messages flow within the network. Network analysis can help researchers determine if a community is an effective one.

An important property of network structure to consider when performing network analysis is the *diameter* of the network. The *diameter* of a network is the length of its longest shortest path. Essentially, this is the shortest path between the two most disconnected nodes (or users) in the network. The observation that the diameter of social networks is often surprisingly small is referred to as the *small world phenomenon* (Lindner, Staudt, Hamann, Meyerhenke & Wagner, 2015). When comparing network diameters of different brands on social media, a smaller diameter would be indicative of a more interconnected (effective) community. Previous research has also shown that, over time, the diameter of viral, or very effective communities, tends to shrink as users tend to make new connections with other users within the community and the community becomes more tightly knit (Schoenebeck, 2013). It is important to observe diameter in context. Certain networks may provide for smaller or larger diameters, conversely the network size itself must be considered. A diameter of "1", though it may indicate that every node within the network is well connected with little distance between them, it may also indicate a very small network of close friends. Diameter is a good indicator of the ease of network proliferation of messages, - how many steps a message must take to permeate the network - however; it does not address the size or density of the network itself.

Network *density* is simply described as the ratio of the number of edges, or ties, between nodes and the number of possible edges, or ties, within the network (Faust, 2006). This is an important property of network structure because as density increases one can assume an increase in overall user engagement and participation within the network as new edges, or ties, between users form. A low density may be an indication of many users contributing content, without connecting with other users or interacting with other users' content within the network. A goal of a brand community would be to increase network density as the size of the network increases; which would encourage engagement and communication of users within the community. A high network density could also correlate to a higher network reciprocity value as users interact and respond to each other's content.

Network *reciprocity* is a measure of the tendency for pairs of nodes to form mutual connections between each other. Because of this mutual two-way connection, reciprocity is a measure which serves

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greater importance within directed networks (conversational platforms such as Twitter or SnapChat) where a larger proportion of messages and content are directed back and forth between users. Previous research has indicated that reciprocity is a dominant motivator of user contribution in online communities (Ammann, 2011; Wellman & Gulia, 1999; Wasko & Faraj, 2000). In the evaluation of brand communities, reciprocity could be a good indicator of the amount of conversation generated within and amongst members of the community; therefore, how effective the community is in generating engagement and participation amongst its users.

Centralization is an expression of the tendency of a single point to be more central than all other points in the network (Freeman, 1979). Social network communities may be more or less centralized around particular users or groups of users. Similar to how density describes the general level of cohesion in network or community; centralization describes the extent to which this cohesion is organized around particular focal nodes or users. Centralization and density are complementary measures in this regard. In a brand community, the goal would be to have the community of brand followers or supporters become centralized around the brand itself; therefore, the higher the centralization of the brand community, the more likely that the brand, or influentials within the brand community are to be the center of interaction and conversation. Though centralization is an attractive goal, it is important to note that the goal of any community should be to encourage new ties between users and groups of users. This is where modularity comes into consideration.

Another important property of network structure is the *modularity* of the network. According to Newman (2006) *modularity* is the number of edges (or ties) falling within groups, minus the expected number in an equivalent network with edges (or ties) placed at random. The modularity can be either positive or negative, with positive values indicating the possible presence of a community structure. Networks with high modularity - closer to a value of "1" - have dense connections between nodes within the module (a clique group of users within an online community) but sparse connections between nodes in different modules (the users in the group only connect with other users within their own group and not with other groups within the larger community). This leads to many conversations within groups which

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have no outbound connection tying groups together. Networks with positive modularity but not necessarily a high number - closer to "0" - indicates that community exists and connections between nodes in different module groups also exist (cliques still exist, but they do connect with other cliques and are more engaged with others outside of just one grouping). In other words, the goal of any online branded community would be to have positive modularity - indicating a community exists - with a modularity value closer to "0". This enables a community which isn't too modular and groups of users connect with other users outside of their own friend groups.

Now that the structural properties of online networks have been defined, one must examine the contextual application of these properties to the varying social media platforms which contain branded communities. Many studies have tried to identify influential users and community formation on a platform by platform bases. Few studies have tried to take a networked approach across multiple platforms to identify more universally applicable analysis as brand messages spread through multiple platforms. Different social platforms serve different purposes (Gruzd & Wellman, 2015), and this suggests differences should be taken into account in how researchers should frame community formation and effectiveness within those perspective platforms (Goggins & Petakovic, 2014).

1.3.   Different characteristics of specific social media platforms

Currently, 52% of online adults now use two or more social media platforms and only 28% use just one social media platform (Duggan, *et al.,* 2015). The trend is to use multiple social networking platforms, with each platform serving its own utility and purpose. Not only does each platform serve a different purpose, many of the popular social platforms compete for user attention. Because of this competition social networking platforms are not intrinsically interoperable. Many studies note that engagement and participation in social technology are both constrained and enabled by the features of the technology itself (Goggins & Petakovic, 2014; Gilbert & Karaholios, 2009; Grabowicz, Ramasco, & Eguiluz, 2012; Wellman, Haase, Witte, & Hampton 2001). Networking and communication features from one platform do not necessarily translate into another; nor do exact specific user profiles. It is up to the

user to create similar user profile identities within each platform. The choice of utilizing brands as the subject of research bodes well for a multi-platform study as brands are more likely to create multiple social profiles - with one congruent identity - and brands are likely to attempt to enable online communities which transcend platforms as part of their brand story or marketing objectives.

1.3.1.   Twitter

Twitter is commonly referred to as a "microblogging" platform where users, whom possess a username with a prefixed "@" symbol, can post messages up to 140 characters. Messages may contain images, links, video clips and mentions of other users. Twitter connections are directional and are maintained through the means of following usernames, reposting the content of other users (retweeting) creating lists of users and linking to hashtag (#) communities. Relationships can be both synchronous (a mutual "following" relationship) or asynchronous (the following relationship is not reciprocated). Twitter relationships and messages tend to be asymmetric, meaning users tend follow other users and their messages without reciprocation. An indirect communication connection can be made by mentioning another user's Twitter username (@YetiCoolers for example) anywhere within a tweet or publically reposting (retweeting) a user's tweet (Gruzd & Haythronwaite, 2013). Similar to other networks such as Facebook or Instagram, users can "like" a particular post; Twitter's "like" function is expressed as a "favorite".

Twitter is a participatory platform used by 23% of American adults online (Duggan, *et al.,* 2015). Since such a large proportion of American adults online are using Twitter it is an attractive network for marketers and brands. Brands create @username profiles, which is usually the brand's own trademark or registered name, and they tend to try to cultivate communities around specific #hashtags (like the #builtforthewild community, which the brand @YetiCoolers cultivates). It is important to note that #hashtag communities, unlike @usernames, cannot be completely controlled by the user who created it. Any user can link to the #hashtag by simply including it within a post. This can lead to spam activity as communities become more popular or activity which does not match the brand's original intention.

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1.3.2.   Instagram

Instagram is an online photo and video sharing social networking service which was launched in October 2010 and was later purchased by Facebook in April 2012 (Manikonda, Hu, & Kambhampati, 2014). This platform, with usernames with a prefixed "@" symbol - similar to the functionality of Twitter – is a channel to share life moments in the form of pictures and videos. A key feature of Instagram is that it encourage the use of "filters" or image manipulation software to enhance the visual appeal of the images which the user posts. Instagram provides similar connectivity as Twitter in which connections are directional and typically asymmetric (the following relationship is typically not reciprocated). #hashtag communities play a key role in the formation of these relationships as users can search for images that are tagged with specific #hashtags that are related to their own interests. #hashtag community participation increases the chance that the user's image appears in the public timeline of that community and increases the likelihood of gaining common follower connections based on interest. Users may also "like" or "comment" on images as they see fit allowing for further engagement with the poster and the poster's community of followers.

Instagram is used by 26% of American adults online but more importantly for marketers is that roughly half of internet-using young adults ages 18-29 (53%) use Instagram; and half of all Instagram users (49%) use the site daily (Duggan, *et al.,* 2015). The adults aged 18-29 is an attractive demographic to many brands and it is for this reason that many brands focus a lot of their online marketing resources on creating an active Instagram brand #hashtag community.

1.3.3.   Facebook

Facebook is a social networking platform that relies on mutual relations for connection (Goggins & Petakovic, 2015). Engagement, in the form of posts, comments and likes, center on individual users or organization pages (brand pages). The whole experience of the Facebook platform centers on the relationships between a user and their connections. Because of this close tie connection between users, Facebook is a platform which is more symmetric and synchronous than the other networks explored in this report. The timeline, feed and photo albums Facebook provides allows for users to maintain a catalogue of their daily lives. Posts are not limited by a character limit and posts are typically casual in nature. For the most part, users use Facebook as a form of contact book which allows users to maintain ties and friendships with people whom they already know regardless of geographic location (Lampe, Ellison, & Steinfield, 2006).

According to Duggan, *et al. (*2015), 71% of internet users are on Facebook and more than half of all online adults 65 and older (56%) use Facebook; this represents 31% of all seniors. 70% of users engage with the site daily (and 45% do so several times a day). When paired with the endless data users provide to the platform, Facebook's advertising capabilities are immensely attractive to marketers and brands alike. No other platform covers such a wide demographic and is so intrinsically intertwined within the daily life of the user. Because of this widespread reach and strong ties the platform tends to encourage, many brands believe Facebook is one of the most important social platforms to be present and active on. An effective brand community on Facebook is extremely attractive to brands.

1.4.   Effective online "brand communities" as suggested by literature

 According to Xu et al. (2014), users who are successful not only in getting attention but also in persuading others to maximize their attention are the most influential ones. Since online attention is divided among platforms and online attention is ever more important in terms of social influence, brands who wish to become influential online need to orchestrate strategies and tactics which will proliferate

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attention and cultivate influence across many platforms. One method commonly used by brands and organizations to gain attention, provide engagement, communication, and cultivate digital influence is through the creation of communities around their brand, products or the lifestyle their brand represents (Ashley & Tuten, 2015).

Literature suggests that building and maintaining an effective brand community online provides many benefits to the initiating brand. Engagement within these communities can increase consumer loyalty, communication with other users and their input and reviews play an important role in the purchase decision process, and building relationships within brand communities allows customers to relate with the brand and what it stands for creating a congruence between their own values and those of the brand (Dessart, Veloutsou & Morgan-Thomas, 2015).

Many studies have made recommendations and suggestions on strategies which may enable an effective and engaged community within social networks. This report will attempt to analyze brand communities to discover which of the following literature-based recommendations seem to hold true with evidentiary support.

1.4.1. Effective brand community enablement based on a network analysis perspective

Current literature suggests many recommendations and strategies for the maintenance of online communities. Numbered below are some of the recommendations suggested in the research on the #hcsmca Twitter community by Gruzd & Haythornwaite (2013). Their research and recommendations apply to the enablement of any online community. The recommendations below are presented in the context of a brand community.

1) **Influential users should to act as community leaders.** For long term sustainability that persists beyond the initial few leaders of the brand community, the network needs to grow in a way that distributes leadership and participation beyond single leaders.

Since a brand community generally is led by the brand itself, brands tend to rely on *brand ambassadors* - which are typically popular celebrity accounts within a network, or recognized experts that other users intrinsically trust - to encourage participation within the branded community and increase the reach of the brand's message. These *brand ambassadors* serve as de facto leaders within brand communities. As leaders they act as role-models for the community. They give the other members of the community a model to base their own posts and behavior upon. In sports this is a phenomena typically referred to as *leading by example*. As discussed in later sections, this is particularly true for visual platforms like Instagram where posters adopt the same style as the more popular influential users within the community. This pattern of behavior is known as *homophily*. It is the tendency for users to adopt the same opinions, posting style and general thematic elements (whether visual or text-based) of the leaders of the community. Homophily is readily observed throughout the study of social influence both online and offline (Lazarsfeld & Merton, 1954; Katz & Lazarsfeld, 1955; Manikonda, Hu, & Kambhampati, 2014; Welbers & de Nooy, 2014). Brand ambassadors play a pivotal role in enabling effective brand communities.

2) **Make connections to other influential users who are engaged in alternate networks.** More prominent actors are engaged in multiple networks related to the brand and the lifestyle the brand wishes to identify with. These actors also bridge networks, they are able to carry the message of the network to others. Engage these types of actors as a way of increasing the reach and prominence itself.

3) **Engage with peripheral participants.** Peripheral participants represent untapped resources for the network. Finding out what motivates such participants can help identify those who will make contributions in the future and thus how to bring their participation into the community.

4) **Use network visualizations to identify roles of users.** Network analysis and visualizations provide a set of techniques and vocabulary about network interactions that can help both group leaders and participants to see the size, shape, and configuration of the network in order to gain a better understanding of its operation and the place of individuals in that operation. Attention to roles can reveal both emergent roles (eg, core participants) as well as show the influence of existing roles. Knowledge of the role each user has within a network has many benefits to the brand who is trying to enable an effective community.

In addition to the above recommendations for community enablement based on a network analysis perspective by Gruzd and Haythornewaite (2013), the research by Dessart, Veloutsou & Morgan-Thomas (2015) provides suggestions on how effective brand communities are enabled based on content analysis of the messages themselves. In conjunction, these two research-based recommendations provide for a systematic analysis framework which is empirical.

1.4.2.   Effective brand community enablement based on content analysis

In enabling an effective community brands need to be conscious of what type of messages they are proliferating and whether these messages strike the right engagement triggers to encourage interaction with the community. According to the research by Dessart, Veloutsou & Morgan-Thomas (2015), the content the brands disperse throughout their networks should be based on engagement driving activity (brand-related, social, and community value) which touches on mental dimensional triggers (affective, cognitive, and behavioral). Based on this framework, messages can be coded based on which type of "engagement" focus they appear to be targeting. *Appendix B: Figure 1, online brand community engagement framework,* displays an engagement framework which is based on survey research conducted by Dessart, Veloutsou & Morgan-Thomas (2015).

Engagement Drivers (types of messages)

1) Brand-related

Messages within this category tend to help consumers relate to the brand at higher affective levels leading to behavior which builds brand satisfaction, brand trust and consumer loyalty. These types of messages encourage feelings of enjoyment and enthusiasm related to the brand. An example of this type of message would be a quick public response to a consumer question with warmth and eagerness to satisfy (as apparent in *Appendix B: Figure 23,* discussed later in this report).

2) Social

Messages within this category are the brand's attempt to identify their own online brand community (OBC identification) and they define how interactions and engagements within the community should exist. These messages touch on consumer's enjoyment and enthusiasm along with giving the brand attention and absorption on a cognitive level. An example of this type of message would be when a brand refers to alternate interests in public posts which are congruent with the interests of the brand's target niche (as apparent in *Appendix B: Figure 22,* discussed later in this report).

3) Community value

This category of messages provides value to consumers. The majority of consumers will not follow or relate to a brand where the relationship is one-sided (Ashley & Tuten, 2015). Value can be provided in the form of information (learning) about the brand and the brand's products, entertainment (exciting content, comical or viral content), networking (social engagement with others who enjoy the brand), and incentives (contests, giveaways, paid endorsements etc.). Messages providing value to the community typically touch on behavior cues such as learning, endorsing and sharing. An example of this type of message would be informative or instructional messages where the brand attempts to provide their consumers with value beyond simple marketing messages (as apparent in *Appendix B: Figure 24,* discussed later in this report).

Engagement Dimensions (targeted outcome of a message)

1) Affective

Messages labelled as "affective" tend to trigger thoughts or feelings surrounding the brand. The common outcome of these messages encourage enjoyment and enthusiasm. For example, during a holiday social messages made by a brand specifically celebrating the holiday would be considered "affective" as they attempt to trigger positive enthusiastic emotions within the consumer. An example from this report can be seen in *Appendix B: Figure 23*.

2) *Cognitive*

Cognitive messages attempt to garner the consumer's mental attention. By getting the consumer's undivided attention, the likely outcome of the message would be cognitive absorption. Examples of these messages would be enticing or entertaining video clips or stunning imagery attached to posts meant to grab the attention of the consumer and retain said attention until the message is absorbed. An example from this report can be seen in *Appendix B: Figure 22*.

3) *Behavioural*

Messages containing a distinct "call-to-action", or an encouraged behavior, such as endorsing the brand or sharing the brand's content are behavioural-based messages. Messages which encourage learning or reading more about a brand's products are also considered to be coded under the behavioural dimension. An example can be observed in *Appendix B: Figure 24*, discussed later in this report.

Though these enablement behaviors and triggers are important for context, this study utilizes a predominantly network analysis-based approach to observe brands and brand communities across multiple platforms. Since so many platforms and communities are being explored, the content analysis will be a subjective overview of the strongest brand community; to verify that the behavior matches the data and what previous research suggests to be effective enablement behavior. Further, in-depth content analysis will need to be done to further examine individual content which the brands proliferate through their networks. The following section will outline the specific objectives of this report as well as lay the framework for the research will be discussed.

1.5.   Research objectives

1) Utilize social media data collection to accurately identify which brands within the study are experiencing the highest growth rates and on which platforms. This will help determine which platform is the focal platform based on total growth and grow rates.

2) Develop a systematic methodological approach using SNA to compare and contrast the effectiveness of brand communities within and across various social media platforms (quantitative analysis).

3) Using the suggested engagement triggers from *Section 1.4.2 Effective brand community enablement based on content analysis and behavioral triggers,* analyze the strongest brand's posting behavior to determine if the brand has enabled effective communities in a manner which correlates to the current literature in the field (qualitative analysis).

4) Provide new recommendations for effective brand community enablement.

2.   Methods

2.1.   Choice of influential brands which maintain brand communities

Three (3) focal brands were chosen for the purpose of this study. They were chosen based on the following criteria:

1) The author of this report chose brands related to a partner organization who funded the research. The sponsor organization creates insulated lunch bags and cooler bags. The brands chosen all are global brands which produce, market and distribute bags, luggage or coolers. These brands are considered related brands to the partner organization and great benefit can be made from learning how to build and maintain effective branded communities when the brands which are studied are so closely related.

2) The brands which were chosen all have brand profiles and maintain brand #hashtag communities across multiple social platforms including Twitter, Instagram and Facebook.

3) The brands which were chosen all have a large and active follower base which will lead to the greatest amount of insight to be observed from the data surrounding their social channels.

The three brands chosen for this study are: **Yeti Coolers**, referred to herein as YetiCoolers, **Herschel Supply Co.**, referred to herein as HershelSupply, and **JanSport,** referred to herein as JanSport**.** YetiCoolers was chosen because it is a recognized competitor to the sponsor organization. HerschelSupply and JanSport were chosen due to their social media prominence and the competition between the brands (both are producers of backpacks and duffel bags).

2.2. Choice of social networks for cross-platform analysis

This study focuses on three (3) social networks: Twitter, Instagram and Facebook. These platforms were chosen because initial research indicated these were the three focal platforms for all three brands. As well, these three platforms provide features which allow for the observation of branded

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communities across platforms. Furthermore, according to Duggan, *et al. (*2015), 71% of internet users are on Facebook, 26% of internet users are on Instagram and 23% of internet users are on Twitter; indicating that these three platforms may be indicative of platforms which brands and marketers wish to target in their marketing efforts.

2.3. Sampling procedure

The primary data for this research was collected across 31 datasets from June 11, 2015 to July 12, 2015 (31 days). The data collected contained public messages revolving around the chosen brands and their hashtags. Twitter, Facebook and Instagram data were collected. *Appendix A: Table 1, Dataset matrix,* refers to the dataset matrix which indicates all the datasets which were collected to complete this research.

This research utilized both manually collected data (collected weekly on the same day and time, starting June 11, 2015 at 3:00pm and exactly every 7 days thereafter) as well as data collected and analyzed using Netlytic (Netlytic.org, 2015) system for automated collection and analysis of social media data. Netlytic is developed and maintained by Dr. Anatoliy Gruzd, the academic supervisor of this study. Netlytic uses public APIs, such as the Twitter REST API, to access and catalogue publicly available data on social networks.

2.4. Network analysis method

Netlytic provides network analysis tools to analyze the data which was collected over the research time period. These tools provide the ability to visualize the name network and provide various network based calculations such as: diameter, density, reciprocity, centralization and modularity. These tools provide for a systematic approach to analyzing name networks and brand communities across social platforms. Further discussion and utilization of this method is explored in Section 3. Results.

2.5. Content analysis method

Netlytic provides the ability to export the social network data as .csv file for manual analysis as well as providing text analysis tools and summary reports based on the entire dataset. These tools automate content analysis which allow researchers to explore a qualitative analysis of emerging networks and brand communities without having to subjectively score content on a message by message basis. Insights such as popular keyword usage (word clouds) as well as language categorization can provide insight into general community sentiment.

2.6. Coding categories

When performing deeper network analysis on influential users within communities, and when analyzing brand messages individually for engagement triggers and behavioral focus, coding categories were utilized to code and categorize content.

2.6.1. Categorizing influential users

Four (4) categories of users were identified when analyzing influential users within each network.

1) ***Brand Ambassadors***, these users tend to be contracted or incentivized professionals who contribute to the network. Typically, they are identified as photographers or experts (such as professional fishermen or outdoorsmen) occasionally these users are simply social celebrities who are identified as an ambassador for a brand within their profile description.

2) ***Store accounts,*** users in this category are clearly identified as a "store" usually by links within profile descriptions to online stores.

3) ***Staff,*** these users can be identified by mentioning that they work for the particular brand within their profile description.

4) ***Average platform user,*** these users may be influential within the network, but upon analysis of their profile, they have an average sized network and do not identify as any

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other category above.

2.6.2. Categorizing engagement triggers (purpose of a particular post)

Three (3) categories of engagement triggers were utilized as categories which describe the purpose of a particular post.

1   ***Brand-related****,* these posts tend to focus on brand identification, brand satisfaction, and brand trust.

2   ***Social,*** online brand community identification. These are the lifestyle and common cues which the brand wishes to identify their communities with in hopes of being able to relate to consumers at a higher, more personal, level.

3   ***Community value,*** these posts tend to focus on delivering value to the consumer. Value can be in the form of information, entertainment, networking, or incentives.

2.6.3. Categorizing engagement dimensions (mental response to the post)

Three (3) categories of engagement triggers were utilized as categories which describe the purpose of a particular post.

1   ***Affective,*** the post triggers emotions such as enjoyment, or enthusiasm.

2   ***Cognitive,*** the post brings attention to the brand or helps the brand message absorb into the consumer's cognition.

3   ***Behavioural,*** the post triggers action, whether learning how to use a product, endorsement of a product to their friends, or sharing the post.

3.   Results

3.1.   Growth of social network accounts and change in social network follower distribution

3.1.1   Total growth and total growth rate by brand

The first objective of this research was to determine which networks the chosen brands are currently experiencing the highest growth within. This information is vital because it will determine which networks are currently the focus networks of each brand and this could give insight into the marketing strategy of each brand. This could also give insight in where the brand should be focusing its attention; if it isn't already focusing on the high growth networks or the networks its competitors are currently experiencing growth within.

Appendix A: Table 2, Initial Social Media Follower Distribution, shows the relative size and distribution of each brand's initial social media following across the platforms: Twitter, Instagram, and Facebook. It is important to note that analysis was not conducted to determine how many users follow each brand on multiple platforms or how many spam accounts follow each brand on each platform. The table describes the gross-total of social media followers and how many followers each brand has within each platform.

It is worth noting that Jansport clearly has the highest amount of total followers (1,662,266 total followers across Twitter, Instagram, and Facebook combined), nearly double that of HerschelSupply (897,564 total followers across Twitter, Instagram, and Facebook combined). HerschelSupply's following is nearly double that of YetiCoolers (469,100 total followers across Twitter, Instagram, and Facebook combined).

For a visual representation of the follower distribution between brands and networks, *Appendix B: Figure 2, Initial social media follower distribution,* displays each brand's distribution of followers in a pie-chart graph. Table 2 and figure 2 are complementary and alternative ways at observing the same data.

YetiCoolers has the lowest total follower amount (distributed between Twitter, Instagram, and Facebook: 469,100) and it has the most even distribution of followers within this study. Facebook comprises 60.5% of YetiCoolers' following base with Instagram accounting for 27.5% and Twitter 12%. It is worth noting that YetiCoolers has the lowest total follower amount in this study, but the highest amount of Twitter followers. Clearly, up to the commencement of this study, Twitter seems to be a greater focus for YetiCoolers than it does for HerschelSupply or JanSport.

HerschelSupply has the second highest total following amongst the brands observed with 897,564 social media followers at the commencement of the study. HerschelSupply has the largest following on Instagram within the study accounting for 63.1% of its total following. HerschelSupply's Twitter following is relatively low when compared to Instagram or Facebook accounting for only 3.7% of its total following. It is worth noting that HerschelSupply does not follow any accounts on its social media platforms.

JanSport has the largest total following within the brands studied in this report (1,662,266). Facebook alone provides the majority share of JanSport's following accounting for 95.1% of its total followers. Instagram and Twitter only consist of 3.59% and 1.36% respectively.

Appendix B: Figure 2, Initial social media follower distribution (graph), clearly shows the degree in which each brand's followers are diversified (or undiversified in the case of JanSport) amongst platforms.

Simply observing follower counts does not provide enough information when assessing which platform each brand focuses on. It is not clear how fast the following of each brand is growing on a weekly, monthly or annual bases. To gain a better understanding of which platforms the brands are focusing on, data was collected manually on a weekly bases of each brand's following statistics to observe

the change in follower counts and distribution month over month.

Appendix A: Table 3: Resulting social media follower distribution, displays the brands resulting follower counts and new distribution at the end of the 31 day study. Note the small degree of change in total distributions, graphing the data in pie-chart format was not necessary as very little noticeable change is detected visually.

For YetiCoolers, all social media accounts grew in size, however; both Facebook (-1.86%) and Twitter (-0.4%) lost share in follower percentage composition when compared to Instagram (+2.24%). This may indicate that Instagram is currently YetiCoolers' strongest branded community of followers. This will be explored further in section 3.1.2.

HerschelSupply also saw all accounts grow in size with marginal change in composition. Instagram (-0.5%) and Twitter (-0.01%) lost a small amount of total follower composition where Facebook (+0.5%) gained follower share. Deeper analysis will be performed in section 3.1.2. as there was only marginal change in HerschelSupply's follower distribution; which may indicate a strong cross-platform strategy since all accounts grew in size at similar proportions.

JanSport also grew in size, however; at a much lower total value than YetiCoolers and HerschelSupply. Only Facebook (-0.42%) lost follower composition share. Twitter remained the same composition and Instagram (+0.37%) grew marginally. Deeper analysis will be performed in section 3.1.2. as, like in the case of HerschelSupply, marginal changes may be indicative of a strong cross-platform strategy. Though it is worth noting that JanSport grew at a much lower rate both in percentage and in number of followers.

3.1.2.   Platform specific growth rates: post frequencies as an indicator of focus platforms

Now that the distribution and change in distribution of followers for each brand has been identified it is necessary to perform a deeper analysis on a platform by platform basis to determine growth rates and posting behavior within each platform. This will allow greater identification of what platform each brand is focusing on and how each brand approaches each platform on a macro-level in terms of effort and resources.

3.1.3.   Facebook

As noted in section 3.1, only one brand (HerschelSupply) had the highest percentage of follower distribution growth within Facebook, however; YetiCoolers actually experienced the highest total growth and total growth rate. Evident in *Appendix A: Table 4, Facebook growth by brand,* all brands experienced growth on Facebook. YetiCoolers grew 5.66% in the one month period compared to HerschelSupply (3%) and JanSport (0.19%).

An interesting observation is that JanSport had the highest post frequency (48 posts per week) but the lowest total follower growth and lowest total growth percentage. YetiCoolers had the lowest post frequency at only (5 posts per week) yet it experienced the highest total growth and total growth percentage. This could be indicative of a more highly engaged community or, conversely, a higher targeted Facebook advertising ad spend. The network analysis performed later in this study will help discover how effective the community is behind the YetiCoolers Facebook page.

3.1.4.   Twitter

As noted in section 3.1 Twitter is the platform which has the lowest follower distribution amongst the brands studied in this report. Each brand experienced marginal change in the percentage that their Twitter followers contributed to their total following. *Appendix A: Table 5, Twitter growth by brand,* shows that all brands experienced growth on Twitter. Again it is evident that YetiCoolers experienced the greatest total growth within Twitter (4.89%). It is also evident that again YetiCoolers experienced the

greatest total growth with the lowest post frequency (6 posts per week compared to HerschelSupply's 10 posts per week and JanSport's 19.25 posts per week).

3.1.5.   *Instagram*

As noted in section 3.1 only HerschelSupply had an Instagram following which lost share in follower distribution composition percentage. *Appendix A: Table 6, Instagram growth by brand,* shows that again, YetiCoolers experienced the highest total growth on Instagram (17.83%) when compared to HerschelSupply (3.36%) and JanSport (11.07%). Again YetiCoolers had the highest growth with the lowest post frequency of only 6.5 posts per week. It is worth noting that in terms of numbers, Instagram had the highest total growth amongst all platforms, which may be an indicator of public attention towards Instagram or it may indicate that Instagram is the platform which current online marketers and brands focus on.

Clearly, section 3.1.2. has demonstrated that YetiCoolers experienced the greatest growth across all the platforms within the study in terms of new followers (41,915) and following growth (8.94%). The overall growth totals and rate can be seen in *Appendix A: Table 7, total growth by brand and post frequency*. It is also evident that Instagram seems to be the focal platform in terms of total growth. Follower counts and following growth is not the whole picture. These brands have quite a large following already and some of which may already have an active and effective brand and brand community which has reached maturity in terms of new growth. Just because a community is not growing as fast as another community does not mean it is not an effective one. As well, followers can be bought or manipulated. To determine if real influence is occurring within these brands and their social media presence, network analysis needs to be conducted. The next section will explore a network analysis on a platform by platform basis.

3.2.   Social network analysis

The following sections explore an analysis of network structure. Each brand will be assessed and scored based on various network calculations in order to determine how effective the brand is at enabling community around their brand within each platform. In an effort to keep the analysis systematic and methodological, each network measure will be observed as outlined in *Section 1.2 Interpreting network structure.* Each brand will be assessed based on the following categories: name network size, diameter, density, reciprocity, centralization and modularity. Additionally, discussion of network visualizations will be used within each section, where applicable, to better illustrate the visual network structure of the brand communities and how the structure and network properties correlate to effective community enablement.

3.3.   Twitter

As indicated in section 3.1.4. YetiCoolers experienced the highest total growth during the duration of the study on Twitter with an increase of 2,765 followers in the 31 day period (a growth rate of 4.89%). YetiCoolers also has the highest amount of Twitter followers between the brands studied in this report which may indicate that Twitter is a more focal platform for YetiCoolers than it is for the other brands.

In order to determine if this Twitter following around the YetiCoolers brand is an effective one, a social network analysis needs to be done. This will provide network measures which can be compared and contrasted amongst the brands to determine which brands enable effective communities according to graph theory and statistical interpretation.

A note about the datasets: For the purpose of this study a manual analysis of each brand across platforms was initially conducted to determine the brand #hashtag communities each brand was cultivating in order to better inform dataset collection. For Twitter, the brand itself was used as a search term (ie, "Yeti Coolers lang:en"), as well as the brand as a #hashtag (ie, #YetiCoolers), finally any brand #hashtags (ie, #builtforthewild for YetiCoolers) were collected. The generalized search term for the brand

was included because it may give an indication of users mentioning the brand without "tagging" the brand within their posts. This may be an indication of the brand's potential to grow, as suggested by the recommendations in section 1.4, this provides an opportunity for brands to reach out to these peripheral users (recommendation 3) and encourage them to tag the brand itself in their messages, which will not only increasing network size, it would help to bridge networks (recommendation 2).

It should be noted that the term: the "@username" name network was not included due to API restrictions between platforms. For example Instagram's API only allows the collection of data for #hashtag name networks and not for individual @username name networks. Because of this reason, it was deemed appropriate to exclude @username name network data in the network analysis of brand communities and effective community enablement across platforms.

Appendix A: Table 8, Twitter search terms and branded #hashtag community network analysis, displays the resulting network calculations from each brand and their brand #hashtag communities. The below sections interpret the network data based on a clear set of network properties. This approach allows for researchers to better explicate which brand communities are more effective at certain aspects of community enablement within the Twitter platform.

3.3.1. *Name network size*

Based on initial observations of *Appendix A: Table 7, Twitter search terms and branded #hashtag community network analysis,* # of nodes, # of ties, and # of names, JanSport seems to have the greatest potential for *peripheral* outreach with 5,273 names involved in mentioning the term "JanSport" and only 370 names actually tagging #JanSport. *Peripheral users* are users who have few ties to other nodes and are not central users to the network. These users tend not to normally interact with the network. This means that the term "JanSport" is mentioned by users often on Twitter without any effort to tag the brand itself within the tweets. JanSport therefore has the potential to grow their name networks around their brand communities by reaching out to these distantly peripheral users and

encouraging the use of the #JanSport hashtag or in mentioning @jansport in their tweet. In contrast, YetiCoolers appears to have most effectively encouraged the use of the #YetiCoolers hashtag, instead of merely mentioning Yeti Coolers in a tweet without a tag.

When observing the size of brand communities which do not include the brand name within the hashtag, HerschelSupply's #welltravelled has the most names with 304, where YetiCoolers' #builtforthewild has 290 and JanSport's #lifeunzipped has 32. As discussed earlier, size alone does not indicate effective community, the diameter, density, reciprocity, centralization and modularity all need to be taken into consideration.

The general size and structure of each network can be compared in observing *Appendix B:*

Figure 3, Twitter network visualization of JanSport's #lifeunzipped,

Figure 4, Twitter network visualization of YetiCoolers' #builtforthewild, and

Figure 5, Twitter network visualization of HerschelSupply's #welltravelled.

As discussed earlier in this section, JanSport's #lifeunzipped community is much smaller in size than YetiCoolers' #builtforthewild or HerschelSupply's #welltravelled; where #builtforthewild and #welltravelled are virtually the same in terms of total name network size.

3.3.2. *Diameter*

As discussed in section *1.2 Social network analysis: interpreting network structure,* the diameter of a network is the length of its longest shortest path between the two most remote nodes in the network. When comparing brand communities, a smaller diameter would be indicative of a more interconnected (effective) community. When the communities around the brand name itself (ie. #YetiCoolers, #HerschelSupply, and #Jansport) are observed, YetiCoolers has the smallest diameter (4) followed by Jansport (6) and HerschelSupply (7). This means that users of the brand name #hashtags for the

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YetiCooler have the lowest degree of separation between them referred to as the *small world phenomenon* (Lindner, Staudt, Hamann, Meyerhenke & Wagner, 2015). This could indicative that YetiCoolers has a more inclusive and connected community, or, it could also be due to the fact that YetiCooler's is highly focused on tight-knit niche communities.

When each brand's largest brand hashtag which isn't the brand's own name is observed, YetiCoolers' #builtforthewild and JanSport's #lifeunzipped both have a diameter of 4 and HerschelSupply's #welltravelled has a diameter of 6. #builtforthewild is nearly ten times larger and has twelve times more ties than #lifeunzipped which may indicate a more flourishing and active community. Conversely, #builtforthewild (290 names) has 314 ties compared to #welltravelled (304 names) only has 184 ties.

The diameter of each network can be compared in observing *Appendix B:*
Figure 3, Twitter network visualization of JanSport's #lifeunzipped,
Figure 4, Twitter network visualization of YetiCoolers' #builtforthewild, and
Figure 5, Twitter network visualization of HerschelSupply's #welltravelled.

When comparing similar sized networks, #builtforthewild and #welltravelled, it is clear that #builtforthewild has a lower diameter as the ties are noticeably more tightly knit with a shorter distance to travel between the most disconnected nodes. Further network measures, like density, will help determine further which community is more effective at promoting the ease and speed of the spread of content throughout.

3.3.3.   Density

As discussed in section *1.2 Social network analysis: interpreting network structure,* the network density is the ratio of the number of edges, or ties, between nodes and the number of possible edges, or ties, within the network (Faust, 2006). This measure is important because it compares how many users (# of nodes) are involved with the community to how many connections they make with each other (# of ties). This is a good indication of engagement of users within the community to each other. Due to the nature of Twitter, users may use #hashtags without any intention of getting involved further within the community or connecting with other users. As suggested by recommendation 3 in section *1.4 Effective online "branded communities" as suggested by literature,* making connections with these peripheral users should help brands enable effective community.

As evident in *Appendix A: Table 8, Twitter search terms and brand #hashtag community network analysis,* #YetiCoolers has the highest branded username #hashtag density (0.008269) compared to #Jansport (0.005649) and #HerschelSupply (0.004952). Furthermore, JanSport's #lifeunzipped has the highest density of the non-username based branded #hashtag communities (0.041667). As mentioned earlier, this may be as a result of the smaller size of the dataset (23 names and 25 ties). YetiCoolers' #builtforthewild has a density of 0.005168 compared to HerschelSupply's #welltravelled with a density of 0.004432. Given its size, #builtforthewild seems to be the most effective brand #hashtag community in terms of density.

The density of each network can be compared in observing *Appendix B: Figure 3, Twitter network visualization of JanSport's #lifeunzipped, Figure 4, Twitter network visualization of YetiCoolers' #builtforthewild,* and *Figure 5, Twitter network visualization of HerschelSupply's #welltravelled.*

Similar to the observations made about diameter, the difference in density between #builtforthewild and #welltravelled is very clear. #welltravelled has many more peripheral nodes and

small 2 or 3 node groupings than that of #builtforthewild.

Now that size, diameter and density are known, it is important to observe how well the communities generate conversation between users. This generation of conversation and mutual engagement is measured by the reciprocity calculation of the network.

3.3.4.   Reciprocity

Calculating network reciprocity is one method of measuring the amount of mutual - back and forth - conversation a community generates. As evident in *Appendix A: Table 8, Twitter search terms and branded #hashtag community network analysis,* the branded community which as the highest reciprocity value is JanSport's #lifeunzipped (0.160). This result was surprising. Based on all other measures JanSport did not score favorably.

Further analysis using a network visualization of the network, seen in *Appendix B: Figure 3, Twitter network visualization of JanSport's #lifeunzipped,* explains why #lifeunzipped reciprocity value is misleading in terms of real influence. It is evident that within this #hashtag community JanSport is the most central node with an in-degree of 18 and an out-degree of 1. Upon further analysis of these connections using Netlytic it was determined that the higher reciprocity value of this community when compared to the other brands was due to the amount of tweets which were "retweets". JanSport's entire total degree value was based on retweets of marketing messages - messages containing a link to their website - effectively meaning that the majority of the messages within the community were JanSport's own marketing messages which were passed on one time by users with little connection to each other. Since there were no other forms of engagement or conversation within this community, JanSport's #lifeunzipped community on twitter is considered ineffective.

In contrast, YetiCoolers had the lowest reciprocity value when top brand #hashtag communities

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were compared (0.032) and HerschelSupply's #welltravelled scored (0.087). Both YetiCoolers and HerschelSupply had a mix of marketing messages along with messages pertaining to contests (where the prizes were a Yeti Cooler or a Herschel back pack).

According to the reciprocity calculation alone, it would seem as #welltravelled is the most effective at generating reciprocity within the community. Further analysis, when *Appendix B: Figure 4, YetiCooler's #builtforthewild twitter network visualization* is compared to *figure 5. HerschelSupply's #welltravelled Twitter network visualization*, it is noted that there is more modular conversation which is disjointed from the central node within the #welltravelled community. Upon further inspection using post analysis it was determined that #welltravelled is a community of adventure photographers who tag their adventures as being #welltravelled. HerschelSupply effectively started the #welltravelled community based on a contest which encouraged users to document their adventures using the hashtag (HerschelSupply website, January 2014). Since the contest is now one and a half years old, it appears that the community has grown beyond the brand itself. Further analysis needs to be done to determine to what degree the community has separated from the parent brand.

3.3.5.   Centralization

Centralization is a measure which indicates to which degree the network is centered on a particular node or group of nodes. The more centralized a community is, the more likely it is to be centered on one user (or brand). *Appendix A: Table 8, Twitter search terms and branded #hashtag community network analysis,* indicates that the brand community with the highest degree of centralization is YetiCoolers' #builtforthewild (0.388). JanSport's #lifeunzipped (0.385) was nearly as centralized, but since the community itself consists purely of retweets, it was expected to have a high degree of centralization. Comparing the network visualizations, *Appendix B: Figure 3, Figure 4 and Figure 5*, displays visually the degree in which #builtforthewild and #lifeunzipped are considerably more centralized than #welltravelled. #welltravelled is considerably more dispersed with many peripheral connections when compared to #builtforthewild or #lifeunzipped.

3.3.6.   Modularity

As indicated by section *1.2 Social network analysis: interpreting network structure,* a positive modularity value indicates a community is present; where a value closer to 1 indicates a highly modular community and a value closer to 0 indicates the community is not very modular. The goal of a brand would be to create communities with a low modularity score, as this would indicate the community is more inclusive and not broken off into several sub-groupings which only engage within their sub-group.

Appendix A: Table 8, Twitter search terms and brand #hashtag community network analysis, indicates that the least modular brand community that is not based on the brand name itself is #lifeunzipped (0.040). Because this community consists solely of the brand's own messages and retweets of those messages, the least modular brand community which is actually effective and not based on the brand name itself is #builtforthewild (0.459). HerschelSupply's #welltravelled (0.758) was the most modular indicating many separate conversations take place within the community. When communities based on brand name are considered, #HerschelSupply (0.418) is the least modular community. #yeticoolers (0.745) and #jansport (0.758) were similarly moderately modular.

3.4. Instagram

The following sections will analyze brand communities on the Instagram platform. Due to the features and structure of Instagram, the network analysis will provide statistical values which are not directly comparable to other networks like the values seen in *Section 3.3. Twitter*, rather this study aims to determine which brand communities are effective on each platform within the context of the particular platform, and then compare and contrast the results between platforms.

As mentioned in section *3.2.1 Twitter*, "@username" name networks were not included in this study. The @username name network was not included due to API restrictions within the Instagram platform. Instagram's API only allows the collection of data for #hashtag name networks and not for

individual @username name networks.

Appendix A: Table 9, Instagram branded #hashtag community network analysis, displays the resulting network calculations from each of the branded #hashtag communities. For congruency and in completion of a cross-platform study, the same #hashtag communities were observed as in previous sections.

3.4.1.   Name network size

Based on initial observations of Appendix A: Table 9, Instagram branded #hashtag community network analysis, # of nodes, # of ties, and # of names, HerschelSupply's #welltravelled has the largest overall name network (72,483 names, 61,951 ties, 18693 nodes). Another HerschelSupply brand community, #citylimitless was the next largest community (24,015 names, 18,491 ties, 5256 nodes). YetiCoolers' #builtforthewild was the third largest brand community which was not revolving around a brand name (14,861 names, 11,627 ties, 5451 nodes). In contrast, JanSport's largest brand community, aside from their own brand name, was #lifeunzipped (1,897 names, 1430 ties, 731 nodes). It is important to note that JanSport's #lifeunzipped is 12.7% the size of #builtforthewild, and 2.6% the size of #welltravelled.

To give a visual representation of name network size, the networks are visually displayed using the Fruchterman-Reingold layout (Fruchterman & Reingold, 1991), a popular force-based algorithm, within the following figures:

Appendix B:

Figure 7, Instagram network visualization of JanSport's #lifeunzipped,

Figure 11, Instagram network visualization of YetiCoolers' #builtforthewild,

Figure 15, Instagram network visualization of HerscheSupply's #welltravelled,

It is quite apparent based on this set of visualizations that #lifeunzipped is a much smaller community in comparison to #builtforthewild and #welltravelled. Further discussion of these visualizations and alternate display methods of these visualizations will be discussed in following sections.

3.4.2. Diameter

When the communities around the brand name itself (ie. #YetiCoolers, #HerschelSupply, and #Jansport) are observed, YetiCoolers has the smallest diameter (59) followed by HerschelSupply (113) and JanSport (2432). This correlates with the Twitter data in *Section 3.2.1,* indicating that YetiCoolers has a more inclusive and connected community surrounding its brand. The massive diameter of JanSport (2432) was surprising. Further analysis of the name network provided by Netlytic gives insight as to why the diameter value is so large.

Appendix B: Figure 6, #JanSport name network on Instagram, username word cloud, displays the top 50 names which appear in the #JanSport community. Take note of any name containing "eighteen19", "iklan", or "promote". These names are all names which have created multiple accounts on Instagram all with the purpose of "promoting" JanSport. Upon review, it is clear that there is clear spam activity going on within this network which is inflating the account size and altering the metrics. The other #hashtag communities which were conceived by JanSport are not as congested with spam accounts. Since this is a comparative study across many platforms, no actions were taken to clean up or remove any spam activity from brand community datasets.

Amongst brand communities which are not revolving around the brand name itself, JanSport's #lifeunzipped has the smallest diameter (22) followed by another JanSport brand community #rightpack (26). YetiCoolers had the lowest diameter of the larger communities containing over 10,000 names with #builtforthewild (64), followed by HerschelSupply's #welltravelled (97) and #citylimitless (120) had the largest diameter. It is interesting to note that #JanSport had the highest diameter due to spam, but its brand communities #lifeunzipped and #citylimitless had the lowest diameters. Congruent with the

Instagram growth data in *Appendix A: Table 6, Instagram growth by brand,* JanSport had the second highest growth rate on Instagram (11.07%) coupled with the lowest diameters amongst its non-brand name based brand communities. These insights could be an indication that JanSport is enabling effective brand community around its brand #hashtags.

Conversely, as previously mentioned, HerschelSupply's brand #hashtags, #welltravelled and #citylimitless, and YetiCoolers' #builtforthewild, are incentivized #hashtags which have been in existence for an extended period of time. These #hashtags are now well established and large communities where JanSport's communities are less established and growing.

3.4.3. Density

Due to the nature of Instagram and the fact that most brand #hashtag communities studied in this report are considered incentivized, or contest-based #hashtags, users may use #hashtags without any intention of getting involved further within the community. This leads to a lower overall density as nodes and ties may be disproportionate. As suggested by *recommendation 3* in section *1.4 Effective online "branded communities" as suggested by literature,* making connections with these peripheral users should help brands enable effective community.

As evident in *Appendix A: Table 9, Instagram branded #hashtag community network analysis,* #JanSport has the highest branded username #hashtag density (0.000284) compared to #YetiCoolers (0.0000903) or #HerschelSupply (0.0000601). As mentioned previously, the greater density for #Jansport could be a result of its much smaller name network and may not necessarily indicate effective community. This assumption holds true when brand communities which are not revolving around brand names are compared, JanSport's #RightPack community has the most attractive density value (0.002121) followed by #lifeunzipped (0.000687). HerschelSupply's contest #hashtag, #welltravelled (0.0000852) has a greater density value than YetiCoolers' #builtforthewild (0.0000702). This is an interesting observation since #welltravelled is a much larger name network. These findings may indicate that, on

Instagram, HerschelSupply's brand communities are dense and tight-knit (more effective at making connections within) especially when the size of HerschelSupply's brand communities are taken into consideration.

To give a visual representation of name network densities, the networks are visually displayed using the *DrL layout* (Martin, Brown, Klavans, & Boyack, 2008), which is a force-directed graph layout effective for visualizing large networks and densities since long edges are cut to highlight clusters (Netlytic.org, 2015), within the following figures:

Appendix B:

Figure 9, Instagram network visualization of JanSport's #lifeunzipped,

Figure 13, Instagram network visualization of YetiCoolers' #builtforthewild,

Figure 17, Instagram network visualization of HerscheSupply's #welltravelled,

Upon observation of the above mentioned figures, it is evident that *figure 9, #lifeunzipped* is considerably less dense than *figure 12, #builtforthewild* and *figure 15, #welltravelled*. It is also clearly apparent that, even with the long edges removed to highlight clusters in the DrL layout, #welltravelled is considerably more-dense than #builtforthwild with many tightly bound clusters.

3.4.4. *Reciprocity*

Based on reciprocity values in *Table 8. Instagram branded #hashtag community network analysis,* the brand community #HerschelSupply had the highest reciprocity value (0.178) followed closely by #YetiCoolers (0.166) and #JanSport was far lower (0.08). Upon further analysis of brand communities which were not based on the brand's name, JanSport's #lifeunzipped had the greatest reciprocity value (0.241), followed by YetiCoolers's #builtforthewild (0.185) and HerschelSupply's #citylimitless (0.176) and #welltravelled (0.154).

Reciprocity values are higher on Instagram likely due to the fact that Instagram does not natively have retweet or repost capabilities. When a user comments on a picture or mentions another user within a comment, due to the structure of Instagram, a response is more likely to occur, leading to higher reciprocity within the community on Instagram in particular. Conversely, upon content analysis it is apparent that many comments on images within HerschelSupply's communities are users tagging friends within comments, likely as a gesture to their friend to look at the photo (or bag) in the photo. This type of outreach does not intuitively suggest a response, which will lower the reciprocity value; however, this type of outreach is attractive to brands as it is an indication their social marketing is being effective.

3.4.5. Centralization

The centralization values displayed in *Appendix A: Table 9, Instagram branded #hashtag community network analysis,* are all relatively low in comparison to what they were on Twitter with #brandname communities all with values falling within +/- 0.004. The brand #hashtag communities which were not based on brand name had higher deviation and were therefore more conclusive measures; however, they were still very low which may indicate a weak correlation between degree of centralization and brand community effectiveness on Instagram in particular. JanSport's #lifeunzipped was the most centralized (0.065), HerschelSupply's #citylimitless (0.014) followed and YetiCoolers' #builtforthewild (0.010) and #welltravelled (0.007) were the least centralized networks.

As stated earlier, it is an attractive goal for brands to have brand communities centralized around their own brand name, but too much centralization may actually be a hindrance to community development. On Instagram, and in particular in the cases of HerschelSupply and YetiCoolers, an interesting observation is that their brand community networks are centralized around many highly influential users - at least in terms of total degree centrality - producing a community which does not have the highest centralization value, but likely the highest total reach.

Network visualizations displayed using the *Fruchterman-Reingold* layout (Fruchterman &

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Reingold, 1991), with the peripheral "other" clusters removed from the visualization gives a more clear picture of the effect influential users have upon the brand communities. These visualizations are displayed in the following figures:

Appendix B:

Figure 8, Instagram network visualization of JanSport's #lifeunzipped,

Figure 12, Instagram network visualization of YetiCoolers' #builtforthewild,

Figure 16, Instagram network visualization of HerscheSupply's #welltravelled,

Apparent in each visualization are the effect influential users have on the community (generally highlighted by being larger sized / central nodes based on total degree, and having many ties branching off of them creating a firework like effect). In particular, *figure 14, #builtforthewild* and *figure 15, #welltravelled,* shows how the influential users tend to stand out within the visualization of the network as the network itself tends to be more centralized upon them.

3.4.6.   Modularity

Instagram as a platform encourages networks to be more modular by allowing the use of up to 30 separate #hashtags in a single post. Generally, if an influential user posts an image with a #hashtag attached, their own community will comment or like the image and a smaller proportion of the influencer's community will click the hashtag and interact with other users' posts.

Appendix A: Table 9, Instagram branded #hashtag community network analysis, indicates that the least modular brand community that is not based on the brand name itself is #lifeunzipped (0.786). HerschelSupply's community #citylimitless had a modularity of 0.847 followed by #welltravelled (0.804). YetiCoolers was the most modular (0.935) which may suggest that YetiCoolers in particular has enabled a community which is highly clustered and less effective at bridging clusters of users together. This could also suggest that YetiCoolers is reaching a diverse set of communities which may actually be positive for the brand overall (while negatively affecting their modularity value, they are positively increasing the

reach of their community to new users).

Network visualizations displayed using the *Lgl* layout (Adai, Date, Wieland, & Marcotte, 2004), gives a clearer picture of the effect influential users have upon the brand communities. The Lgl layout is very effective for visualizing large networks as it makes the visualization of large networks more accessible and easier to understand by only visualizing the largest connected component of the network. These visualizations are displayed in the following figures:

Appendix B:

Figure 10, Instagram network visualization of JanSport's #lifeunzipped,

Figure 14, Instagram network visualization of YetiCoolers' #builtforthewild,

Figure 18, Instagram network visualization of HerscheSupply's #welltravelled,

When the three visualizations above are compared it is apparent that *Figure 13, #builtforthewild* is indeed the most modular brand community as evident by the clearly defined clusters of nodes which only interact among themselves. Conversely, the least modular community, *figure 10, #lifeunzipped,* appears to be the most inclusive as engagement is spread amongst many nodes. As well *Figure 15, #welltravelled,* clearly displays a more dense community which is not very centralized around one particular node or group of nodes. It is also apparent that *Figure 15, #welltravelled* has a lower diameter than *figure 13, #builtforthewild,* as built for the wild has clusters far removed from the community itself.

Where in the case of Twitter, it was clear that YetiCoolers best enabled brand community, the Instagram analysis is less conclusive. Based on these network analysis-based findings, it is evident that all three brands enable strong communities on Instagram. HerschelSupply's #welltravelled is by far the largest, most dense community and despite its size it, has maintained a low diameter when compared to YetiCooler's #builtforthwild. Conversely, JanSport's #lifeunzipped proved strong in reciprocity, centralization and low modularity indicating it is also a strong community. YetiCoolers' #builtforthewild also scored comparatively strongly in terms of size, density and reciprocity. Due to these observations, it

is difficult to declare one brand most effective at enabling community in terms of Instagram alone.

3.5. Facebook

The following sections will analyze brand communities on the Facebook platform. Due to the API restrictions of Facebook, only posts by a brand page can be examined. Furthermore, the data is also limited to 100 top level posts to and from a page, as well as up to 25 replies per post (replies to replies are not included).

The network analysis will provide statistical values which are not directly comparable to other networks like in *Section 3.3. Twitter* or *Section 3.4. Instagram.* As discussed in *Section 1.3.3. Facebook,* Facebook is a platform which is structured in a manner which is very different from Twitter or Instagram. Since #hashtag community data cannot be collected for Facebook with Netlytic, the following network analysis is based on the brand's Facebook page data.

Appendix A: Table 10, Facebook brand page community network analysis, displays the resulting network calculations for each brand's Facebook page.

3.5.1. Name network size

As indicated by *Appendix A: Table 3, Resulting social media follower distribution,* JanSport had the largest total following on the Facebook platform (1,672,043 fans), followed by HerschelSupply (307,354 fans) and YetiCoolers (299,691 fans). According to *Appendix A: Table 4, Facebook growth by brand,* JanSport also had the largest total amount of new posts throughout the study (192), followed by HerschelSupply (137) and YetiCoolers (20). Based on the amount of fans and number of posts, one would expect JanSport to have the largest name network within the study; this was not the case.

Observed within *Appendix A: Table 10, Facebook brand page community network measures,* it

is evident that YetiCoolers clearly had the largest name network (659 names, 531 ties, 1423 nodes). HerschelSupply had the second largest name network (390 names, 80 ties, 631 nodes). JanSport, even though they have the most fans, they had the smallest name network observed (79 names, 30 ties, 248 nodes). Since Netlytic collects Facebook data based on activity surrounding posts and comments, it is clear that although JanSport has the largest total following and highest post frequency, they have the lowest engagement of all the brands studied. YetiCoolers also managed to enable the largest community with the fewest total posts.

3.5.2. Diameter

 Appendix A: Table 10, Facebook brand page community network measures, indicates that HerschelSupply managed to enable a community with the lowest diameter (6). JanSport measured a diameter of 21 and YetiCoolers had a diameter of 30. This indicates that the fans who interacted with HerschelSupply's posts were separated by the fewest degrees of separation.

3.5.3. Density

 Due to the nature of Facebook and the data collection method, the density value miss-represents the communities at hand and is therefore deemed of lesser importance.

3.5.4. Reciprocity

 According to *Appendix A: Table 10, Facebook brand page community networks,* it appears as though HerschelSupply (0.275) had the highest reciprocity score followed by JanSport (0.067) and YetiCoolers (0.008).

3.5.5. Centralization

 Based on centralization, *Appendix A: Table 10, Facebook brand page community network measures,* indicates that YetiCoolers (0.090) was the most centralized network, followed by JanSport

(0.067) and HerschelSupply (0.006).

3.5.6. Modularity

When modularity is observed, *Appendix A: Table 10, Facebook brand page community network measures,* indicates that JanSport (0.177) is the least modular community, followed by YetiCoolers (0.572) and HerschelSupply (0.938). Given that YetiCoolers' number of nodes within their community is 473.8% the size of JanSport's, YetiCoolers' modularity value is likely an indication of a more effective community.

The network visualizations for this data supports the assumptions made above about which brand enabled a more effective community on Facebook throughout the study. Refer to the following network visualizations in *Appendix B:*

Figure 19, Facebook network visualization of JanSport's fan page,

Figure 20, Facebook network visualization of YetiCoolers' fan page,

Figure 21, Facebook network visualization of HerschelSupply's fan page,

When *Figures: 19, 20, and 21,* are compared visually it is evident that YetiCoolers clearly created a larger, more centralized network with an appropriate modularity to indicate that it has enabled an effective community around it's posts. Alternatively, Herschel's lower diameter is apparent, but the network itself does not appear to be as strong as YetiCoolers'. JanSport's community appears to be quite dispersed and it appears as if the low modularity score is a result of lack of clusters.

Coupled with a total growth of 16,045 new fans (5.66% increase) and a post frequency of only 5 posts per week, along with strong network analysis stats, it is evident that YetiCoolers is clearly the most effective brand on Facebook in enabling community.

3.6. Content analysis of YetiCoolers

Based on *Section 3.3. Twitter,* it was clear that YetiCoolers was most successful at enabling community within the Twitter platform. *Section 3.4. Instagram,* indicated that all brands sufficiently enabled community within the Instagram platform. *Section 3.5. Facebook,* again demonstrated that YetiCoolers was superior at enabling effective community. This section, using the suggestions and recommendations explored in *Section 1.4, Effective online "branded communities" as suggested by literature,* attempts to analysis the content which lead to why YetiCoolers scored so highly across all platforms. This section is an attempt to observe whether academically suggested community enabling behavior is present in YetiCoolers' approach to their brand's posting behavior and the brand communities as a whole.

3.6.1. Twitter

YetiCoolers' Twitter activity based on engagement drivers

Based on the recommendations in *Section 1.4.2. Effective brand community enablement based on content analysis and behavioral triggers,* informed by the work of Dessart, Veloutsou & Morgan-Thomas (2015), all of YetiCoolers' Twitter posts were analyzed and categorized based on which engagement driver it best portrayed and which dimension of consumer engagement the post best correlated with.

The results of analyzing YetiCoolers' 19 tweets are displayed in *Appendix A: Table 11, YetiCooler's Twitter activity content analysis.* Based on this scoring system it can be determined that the majority (47.4%) of YetiCoolers' posts were under the "*social*" category which focuses on online brand community identification. *Brand-related* tweets, such as customer service tweets (26.3%) and *community value* tweets, such as tutorial based informational or entertainment centric tweets (26.3%) were in equal proportion. These types of engagement drivers try to identify the brand with certain lifestyle appeals that relate to the consumer on an affective, cognitive or behavioral level.

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Amongst the engagement dimensions, both "affective" – tweets stirring emotion, enjoyment and enthusiasm – and "cognitive" – tweets which strive for attention or absorption – scored equally at 36.8% of total messages. Behavioral – tweets which focus on learning, endorsing or sharing – consisted of 26.3% of tweets.

For example tweets refer to *Appendix B:*

Figure 22, YetiCoolers example "Social" online brand community identification / "cognitive" tweet,

Figure 23: YetiCoolers example "Brand-related / "affective" tweet,

Figure 24: YetiCoolers example "community value" / "behavioral" tweet,

YetiCoolers Twitter activity based on deeper network analysis

Based on *Section 1.4.1 Effective brand community enablement based on a network analysis perspective,* a deeper analysis was conducted to determine if effective community was truly being enabled according to literature-based suggestions. According to Gruzd & Haythornwaite (2013), influential users should to act as community leaders acting as a draw for others and they can provide for a homophilic example for the rest of the community. Essentially the network needs to be able to grow in such a way that it distributes leadership beyond a single leader or leaders.

Through the observation of network visualizations in *Sections 3.3 Twitter, 3.4 Instagram* and *3.5 Facebook,* it is abundantly clear the impact that influential users have within the community. Though these influential users may increase the modularity of the network due to the hub of conversations they create (firework patterns), they tend to provide connections which bridge networks and decrease network diameters while increasing network density making it easier for messages to proliferate throughout the network.

In addition to identifying influential network leaders by observing the nodes and ties within network visualizations there are alternative methods of identifying influential network leaders. Netlyic provides a report which allows researchers to identify the top ten posters within the dataset. This list is based on how many total messages the user contributed to the community during the study period. These users provide more posts to the community contributing to the social capital of the community which may act as a draw for others and encourage participation (Gruzd & Haythornwaite, 2013).

Appendix B: Figure 25, Top ten posters, identifies the top ten posters based on number of messages the user has contributed to the #builtforthewild community. Of the top ten posters, the users were then categorized by role. 4 out of the 10 (40%) were *brand amabassadors* such as fly fishermen or photographers, 2 out of 10 (20%) were *store accounts* which sell YetiCooler products, 2 out of 10 were *average Twitter users* (20%), and 2 / 10 were *staff* members(20%) (including YetiCoolers).

Alternatively, as part of the report Netlytic provides, researchers can explicate the top ten mentioned users within the network. These users are influential largely due to their in-degree centrality score. They are effective users for generating engagement within the community as many users wish to make connections to them by mentioning them in tweets or retweeting their posts. These top ten mentioned users are displayed in *Appendix B: Figure 26, identified the top ten mentioned users within the #builtforthwild Twtiter community*. The users were categorized by role. 3/10 (30%) were *brand ambassadors,* such as fly fishermen or photographers, 3/10 (30%) were *store accounts,* which sold YetiCoolers products, 2/10 (20%) were *staff* members (including YetiCoolers) and 2/10 (20%) were *average Twitter users*.

3.6.2. Instagram

YetiCoolers' Instagram activity based on engagement drivers

Based on the recommendations in *Section 1.4.2. Effective brand community enablement based on content analysis and behavioral triggers,* informed by the work of Dessart, Veloutsou & Morgan-Thomas (2015), all of YetiCoolers' Instagram posts were analyzed and categorized based on which engagement driver it best portrayed and which dimension of consumer engagement the post best correlated with. Since Instagram is a visual platform where each post must be accompanied by a photo or video, the source of the photo was also tracked to determine the proportion of posts other users contribute to YetiCoolers' own feed versus the proportion of posts which originated from YetiCoolers themselves.

The results of analyzing YetiCoolers' 26 posts are displayed in *Appendix A: Table 12, YetiCooler's Instagram activity content analysis.* Of all total posts only 15.4% of the posts were not credited to a *brand ambassador* or photographer. 84.6% of total posts were posted by YetiCoolers but with a photo credit to a *brand ambassador* or photographer. As explored earlier, this demonstrates use of *brand ambassadors* to effectively lead the community and dictate posting style to follow (homophily). Based on this scoring system it can be determined that the majority (80.8%) of YetiCoolers' posts were under the "*social*" category which focuses on online brand community identification (giving the brand personality and the community something to relate to). *Brand-related* posts, were defined by including an actual YetiCooler product in the picture or video (11.5%) and *community value* posts followed, such as entertainment centric videos or images (7.7%). These types of engagement drivers try to identify the brand with certain lifestyle appeals that relate to the consumer on an affective, cognitive or behavioral level.

Amongst the engagement dimensions, "*affective*" posts were by far the most common (80.8% of total posts). These posts provide for emotional relation, enthusiasm and positive connotations of enjoyment. *Cognitive* posts consisted of 11.5% of the total posts – posts focused predominately on attention and absorption. Finally, *behavioral* posts were least common, accounting for only 7.7% of total posts.

For example posts refer to *Appendix B:*

Figure 27: YetiCoolers example "social" online brand community identification / "affective" Instagram post

Figure 28: YetiCoolers example "brand-related" / "behavioral" Instagram post

Figure 29: YetiCoolers example "community value" / "cognitive" Instagram post

YetiCoolers Instagram activity based on deeper network analysis

Netlytic was used to generate a report of the top ten posters within the #builtforthewild brand community on Instagram for the duration of the study (*Appendix B: Figure 30*). The users were categoriezed by role and it was determined that 6 out of 10 (60%) were *brand ambassadors*, 2 out of 10 (20%) were *store accounts* and 2 out of 10 (20%) were *average Instagram users*. This distribution is somewhat proportionally congruent to the distribution seen within Twitter. There were no *staff* accounts involved in the top posters. *Appendix B: Figure 30, top ten posters within the #builtforthwild Instagram community,* displays the distribution of the top posts amongst the top post producing users.

Netlytic was also utilized to observe the top ten mentioned users within the #builtforthewild community on Instagram (*Appendix B: Figure 31)*. Upon categorization an interesting trend arose. 7 out of 10 (70%) of the top mentioned accounts were *store accounts*. Upon further manual inspection, it was apparent that the engagement these posters generated was due to incentivized contests these store accounts were perpetrating. Based on the recommendations in *Section 1.4.2. Effective brand community enablement based on content analysis and behavioral triggers,* incentives fall under the "*community value*" engagement trigger category. Conversely, only 2 out of 10 (20%) of the most mentioned users were *average Instagram users*. Only 1 (10) *brand ambassador* was amongst the most mentioned users. YetiCoolers itself was also the most mentioned user, but this is to be expected within a strong brand community.

3.6.3. Facebook

YetiCoolers' Facebook activity based on engagement drivers

Based on the recommendations in *Section 1.4.2. Effective brand community enablement based on content analysis and behavioral triggers,* informed by the work of Dessart, Veloutsou & Morgan-Thomas (2015), all of YetiCoolers' Facebook page posts were analyzed and categorized based on which engagement driver it best portrayed and which dimension of consumer engagement the post best correlated with. Out of the 20 total posts within the duration of the study, 11 (55%) were posts which only appeared on Facebook. 9 out of the 20 total posts (45%) were considered multi-platform posts (using the same image or video as Instagram or on Twitter). Among the engagement triggers, 11 posts (55%) were categorized as "*brand-related*". These posts mostly pertained to brand satisfaction and responses to customer inquiries. 5 posts (25%) were categorized as "*social*", where the brand tries to identify with their community creating common interests – these posts were typically fishing images borrowed from Instagram. 4 posts (20%) were categorized as "*community value*". These posts typically were specifically for entertainment and were typically the longer versions of the videos which appeared on Instagram.

Amongst the engagement dimensions, "*behavioral*" posts were the most common with 11 of the 20 total posts (55% of total posts). These posts were typically customer service and informational based. 5 out the 20 total posts (25%) were "*affective*" posts – emotional, enthusiasm or enjoyment invoking. 4 out of the 20 total posts (20%) were categorized as "*cognitive*" posts focusing on attention and absorption.

Due to the nature of Facebook and the API restrictions which Netlytic works within, the top ten posters and top ten mention posters cannot be generated.

4. Discussion

4.1 Enablement of effective community

This study attempted to perform empirical social network analysis of three (3) different brands which maintain brand communities on the three primary social networks: Twitter, Instagram and Facebook. Based on total growth and growth rate YetiCoolers clearly had the fastest growing following on all of the social media platforms (+41,195 new followers, 8.94% growth rate – in 31 days). Additionally, YetiCoolers achieved this growth by posting at a frequency (17.5 posts per week) which was only 34.5% the frequency of HerschelSupply and 20.3% the frequency of JanSport. Clearly the content which YetiCoolers posts and the community they have enabled is incredibly active and effective.

Social network analysis also concluded that YetiCoolers had enabled the most effective brand community on Twitter (#builtforthewild). Analysis of Instagram networks proved to rank YetiCoolers, HerschelSupply and JanSport relatively equally across the various network properties. Facebook analysis again proved that YetiCoolers had enabled the most effective community around its brand.

Upon analysis of the data presented within this report, it has become abundantly clear that the best approach for enabling effective community is to actually focus upon, and leverage, the strengths of each specific platform. Just as Gruzd & Wellman (2014) state: "social influence has become networked influence", effective brand communities have become networked communities across multiple platforms.

4.1.1. How YetiCoolers enabled effective community

The purpose of this study was to use empirical analysis to effectively analysis brand communities across networks. After doing so, it was clear that YetiCoolers seemed to be following many of the recommendations set forth by Gruzd & Haythornewaite (2013) and by Dessart, Veloutsou & Morgan-Thomas (2015). In visualizing their networks it was clear that they effectively promoted and reached out to *brand ambassadors* to become posting leaders within their groups; publishing much of the content and providing motivation for other users to get involved while helping dictate a style which matches their

online brand community social identity. As well, they successfully reached out to peripheral users across all platforms in the form of customer support and incentives to join such as contests.

Further content analysis showed that YetiCoolers had a **well-structured approach to the enablement of their community across platforms:**

Twitter contained predominately *social* identification posts (47.4% of all messages), but larger proportions of messages also contributed to *community value* (26.3%) and *brand-related* (26.3%) messages. Essentially, Twitter was used as a customer support hub to build trust and enhance peripheral connections while at the same time help consumers further identify with the online brand community surrounding YetiCooelrs. Twitter also contained a mix of content from Instagram, Facebook (in the form of longer videos) and served as a hub to make announcements or congratulate their followers on the big fish they caught and tagged with #builtforthewild.

Instagram contained 80.8% *social* identification posts which try to help relate the brand to the consumer on deeper cognitive and emotional levels. 80.8% of posts were designed to instill *affective* feelings within the consumers. Essentially, this platform was utilized as the *social* identification proliferator which defined the community based on niche markets like fishing, hunting, adventuring and barbequing. *Brand* ambassadors were key in providing 84.6% of the stunning imagery, stories and videos; all of which centered on their consumers favorite pastimes and were all mixed together to create enthusiasm, enjoyment and emotional connotations with the brand. Naturally, this powerful affective/emotional Instagram content was the cornerstone content, making up the majority of the content which was shared across platforms.

Facebook contained mostly *brand-related* posts (55% of messages), which helped build brand trust, brand identification and brand satisfaction. The emotionally striking imagery from Instagram was shared (not directly from Instagram, but re-uploaded within the post) to generate connection with the

post and congruency of style across platforms. Facebook also differed in that 55% of messages existed to promote behavioural aspects of engagement. Whether it was to teach their consumers about the durability of their products or effective call-to-actions to enter contests, share funny videos, or learn about their *brand ambassador endorsements.*

Just as each platform is explicated structurally in different ways for different purposes, so shall the approach to enablement of effective brand community across platforms. Clearly the right approach can proliferate effective brand community which transcends platforms and ultimately lead to a community which is truly #builtforthwild.

5. Limitations

Though the researcher tried to keep the study as empirically based as possible, there were still many limitations to consider. Many of the limitations stem from the logistics of undertaking a multi-platform study. As mentioned previously, each platform is different and needs to be observed as such; within its own individual context. Because of the differences in platforms, certain network properties were not appropriate measures in a comparative analysis. Alternatively, each platform has its own set of API restrictions and functionality which severely hinders the ability of a study such as this to be truly interoperable between platforms.

Another limitation that could have affected the results of the study was the duration and time in which the study occurred (June 11, 2015 – July 12, 2015). During this time period "coolers" are very much in-season, where backpack-season typically begins in late August. The fact the study fell at this time could have led to artificially high growth rates and engagement with YetiCoolers and artificially low growth and engagement within HerschelSupply and JanSport. In addition, a study of only 31 days may not be long enough in duration to accurately assess the ability for a brand to maintain a brand community in the long-term.

The scope of the study and choice of brands is another limitation. All three brands studied were deemed to enable effective brand communities, there was very little contrasting data to compare and contrast to. As well two brands, HerschelSupply and JanSport, make backpacks and are direct competitors, where YetiCoolers is considered the leader in the high-end performance cooler market. A comparative study between these brands isn't directly conclusive as these markets do not directly correlate.

The author's subjectivity, especially in regard to categorization and post categorization, must also be taken into account. Effective analysis of engagement drivers and dimensions would require a large survey based analysis (or automatic categorization from an algorithm) to be truly conclusive and not based on the author's own judgment.

Appendix A: Tables

Table 1. Dataset matrix, collected from June 11, 2015 to July 12, 2015

Collection Method	Network / Brand	YetiCoolers	Herschel Supply Co	JanSport
Netlytic	Facebook Page	YetiCoolers	HerschelSupply	JanSport
Manual	Facebook Followers	YetiCoolers	HerschelSupply	JanSport
Netlytic	Twitter contains:	"Yeti Cooler"	"Herschel Supply"	"JanSport"
Netlytic	Twitter #	#YetiCoolers	#HerschelSupply	#JanSport
Netlytic	Twitter #	#BuiltForTheWild	#CityLimitless	#RightPack
Netlytic	Twitter #	n/a	#WellTravelled	#LifeUnzipped
Manual	Twitter Followers / Following	@YetiCoolers	@HerschelSupply	@Jansport
Manual	Instagram Followers / Following	@YetiCoolers	@HerschelSupply	@Jansport
Netlytic	Instagram #	#YetiCoolers	#HerschelSupply	#Jansport
Netlytic	Instagram #	#BuiltForTheWild	#WellTravelled	#RightPack
Netlytic	Instagram #	n/a	#CityLimitless	#LifeUnzipped

Table 2. Initial social media follower distribution

Social Media Follower Distribution (June 11, 2015) - Start of Study				
Company	Facebook	Twitter	Instagram	Total
Yeti Coolers	283,600 (60.5%)	56,500 (12%)	129,000 (27.5%)	469,100
Herschel Supply	298,396 (33.25%)	33,168 (3.7%)	566,000 (63.1%)	897,564
JanSport	1,580,051 (95.1%)	22,615 (1.36%)	59,600 (3.59%)	1,662,266

Table 3. Resulting social media follower distribution

Social Media Follower Distribution (July 12, 2015) - End of Study				
Company	Facebook	Twitter	Instagram	Total
Yeti Coolers	299,681 (58.64%)	59,334 (11.6%)	152,000 (29.74%)	511,015
Herschel Supply	307,354 (33.7%)	33,669 (3.69%)	571,000 (62.6%)	912,023
JanSport	1,583,096 (94.68%)	22,747 (1.36%)	66,200 (3.96%)	1,672,043

Table 4. Facebook growth by brand

Facebook Growth by Brand (June 11, 2015 to July 12, 2015)			
Metric / Brand	Yeti	Herschel	Jansport
Initial Followers	283,636	298,396	1,580,051
Final Followers	299,681	307,354	1,583,096
Total New Followers	16,045	8,958	3,018
Total New Posts (31 Days)	20	137	192
Post Frequency (posts / week)	5	34.25	48
Total Growth %	**5.66%**	**3%**	**0.19%**

Table 5. Twitter growth by brand

Twitter Growth by Brand (June 11, 2015 to July 12, 2015)			
Metric / Brand	Yeti	Herschel	Jansport
Initial Followers	56,569	33,186	22,615
Final Followers	59,334	33,669	22,747
Total New Followers	2,765	483	132
Total New Posts (31 Days)	24	40	77
Post Frequency (posts / week)	6	10	19.25
Total Growth %	**4.89 %**	**1.46 %**	**0.58 %**

Table 6. Instagram growth by brand

Instagram Growth by Brand (June 11, 2015 to July 12, 2015)			
Metric / Brand	Yeti	Herschel	Jansport
Initial Followers	129,000	566,000	59,600
Final Followers	152,000	571,000	66,200
Total New Followers	23,000	19,000	6,600
Total New Posts (31 Days)	26	26	71
Post Frequency (posts / week)	6.5	6.5	17.75
Total Growth %	**17.83 %**	**3.36 %**	**11.07 %**

Table 7. Total growth by brand and post frequency

Total Growth by Brand			
	Yeti Coolers	**Herschel Supply Co.**	**JanSport**
Initial Followers	469,100	897,564	1,662,266
Final Followers	511,015	912,023	1,672,043
Total New Followers	41,915	14,459	9,777
Post Frequency (posts / week)	17.5	50.75	86.25
Total Growth %	**8.94 %**	**1.61 %**	**0.59%**

Table 8. Twitter search terms and brand #hashtag community network measures

Twitter, Hashtag Communities Network Measures (June 11 to July 12, 2015)							
Search Term / Hashtag	**# of nodes**	**# of ties**	**# of names**	**Diameter**	**Density**	**Reciprocity**	**Centralization**	**Modularity**
"Yeti Coolers"	354	454	1067	28	0.001650	0.048	0.078	0.888
#YetiCoolers	66	77	222	4	0.008269	0.052	0.156	0.745
#BuiltForTheWild	215	314	290	4	0.005168	0.032	0.388	0.459
"Herschel Supply"	850	1294	1927	22	0.001489	0.006	0.238	0.560
#HerschelSupply	200	270	313	7	0.004952	0.059	0.365	0.418
#CityLimitless	44	54	88	4	0.015254	0.074	0.221	0.560
#WellTravelled	145	184	304	6	0.004432	0.087	0.180	0.758
"JanSport"	1746	2780	5273	311	0.004076	0.153	0.074	0.870
#JanSport	139	174	370	6	0.005649	0.092	0.202	0.758
#RightPack	14	16	20	3	0.066667	0.000	0.381	0.303
#LifeUnzipped	23	25	32	4	0.041667	0.160	0.385	0.040

Table 9. Instagram brand #hashtag community network measures

Instagram Hashtag Communities Network Measures (June 11 to July 12, 2015)								
Brand / Hashtag	**# of nodes**	**# of ties**	**# of names**	**Diameter**	**Density**	**Reciprocity**	**Centralization**	**Modularity**
YetiCoolers								
#YetiCoolers	4185	9188	12822	59	0.0000903	0.166	0.012	0.959
#BuiltForTheWild	5451	11627	14861	64	0.0000702	**0.185**	0.010	0.950
HerschelSupply								
#HerschelSupply	7415	19696	26644	113	0.0000601	0.178	0.011	0.828
#CityLimitless	5256	18491	24015	120	0.0000852	0.176	0.014	0.847
#WellTravelled	**18693**	**61951**	**72483**	97	0.0000298	0.170	0.007	0.804
JanSport								
#JanSport	1474	2300	6275	2432	0.000284	0.087	0.025	0.866
#RightPack	237	354	612	26	0.002121	**0.254**	0.034	0.825
#LifeUnzipped	731	1430	1897	**22**	0.000687	0.241	**0.065**	**0.786**

Table 10. Facebook brand page community network measures

Facebook Brand Page Community Network Measures (June 11 to July 12, 2015)								
Brand	**# of nodes**	**# of ties**	**# of names**	**Diameter**	**Density**	**Reciprocity**	**Centralization**	**Modularity**
YetiCoolers	1423	531	659	30	0.000262	0.008	0.090	0.572
HerschelSupply	631	80	390	6	0.000201	0.275	0.006	0.938
JanSport	248	30	79	21	0.000490	0.067	0.051	0.177

Table 11. YetiCoolers' twitter activity content analysis (June 11, 2015 – July 12, 2015)

Driver	Count	%
Brand-related	5	26.3
Social identification	9	47.4
Community Value	5	26.3
Dimension		
Affective	7	36.8
Cognitive	7	36.8
Behavioral	5	26.3

Table 12. YetiCoolers' Instagram activity content analysis (June 11, 2015 – July 12, 2015)

Driver	Count	%
Brand-related	3	11.5
Social identification	21	80.8
Community Value	2	7.7
Dimension		
Affective	21	80.8
Cognitive	3	11.5
Behavioral	2	7.7
Photo Source		
Ambassador	22	84.6
YetiCoolers	4	15.4

Table 13. YetiCoolers' Facebook page activity content analysis (June 11, 2015 – July 12, 2015)

Driver	Count	%
Brand-related	11	55.0
Social identification	5	25.0
Community Value	4	20.0
Dimension		
Affective	5	25.0
Cognitive	4	20.0
Behavioral	11	55.0
Platform		
Multi-platform post	9	45.0
Facebook only	11	55.0

Appendix B: Figures

Figure 1: Online brand community engagement framework (Dessart, Veloutsou & Morgan-Thomas, 2015)
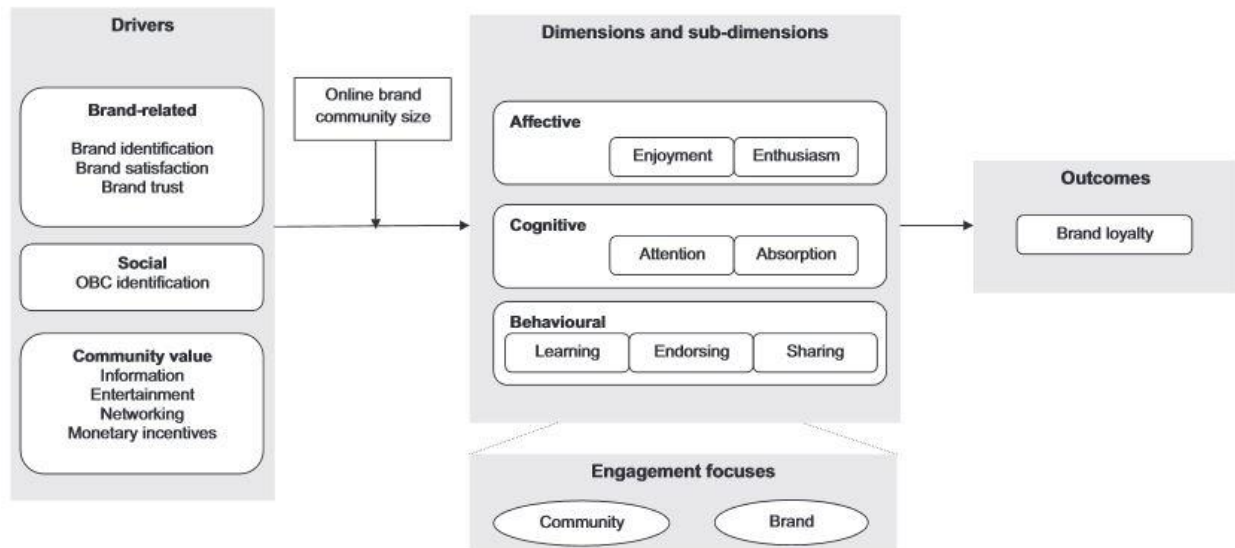
Figure 2: Initial social media follower distribution (graph)

Figure 3:   Twitter network visualization of JanSport's #lifeunzipped (June 11, 2015 - July 12, 2015)
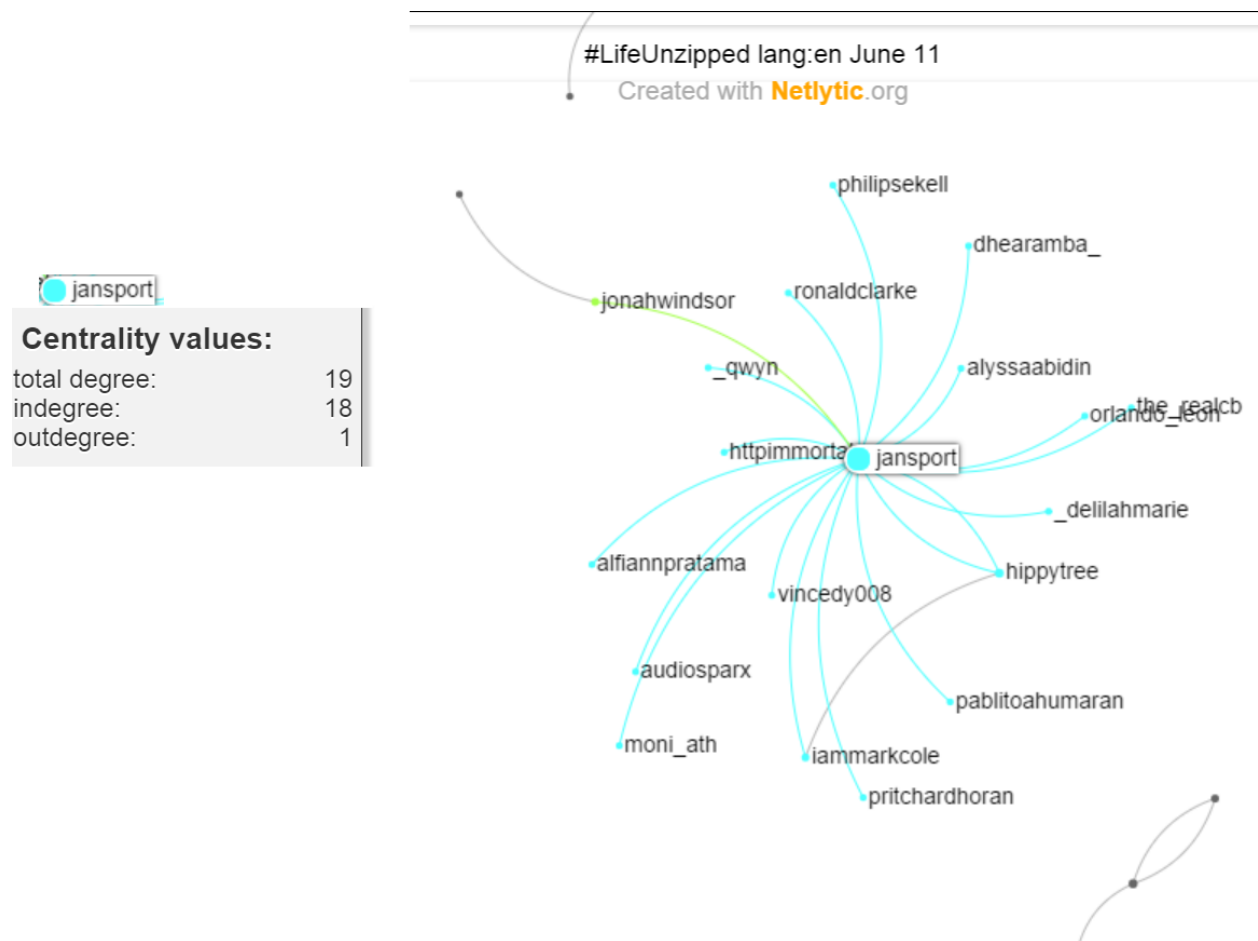
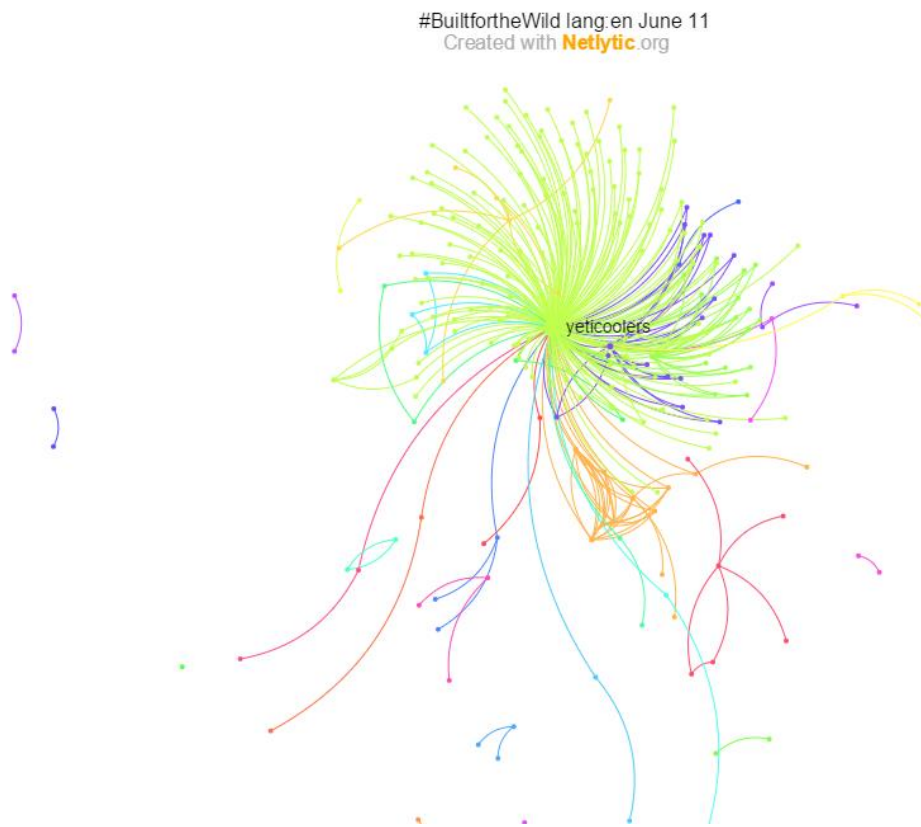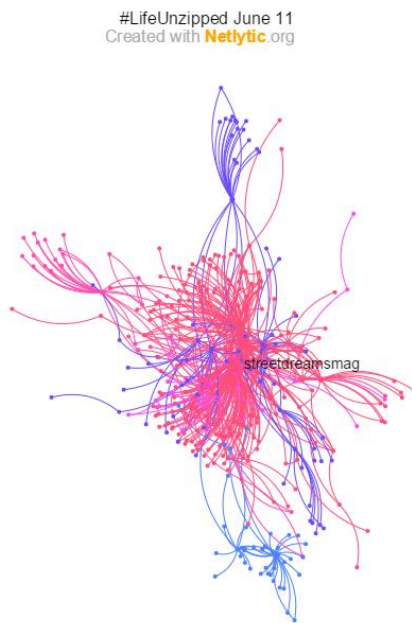**Figure 4:   Twitter network visualization of Yeti Coolers' #builtforthewild (June 11, 2015 - July 12, 2015)**

Figure 5:   Twitter network visualization of HerschelSupply's #welltravelled (June 11, 2015 - July 12, 2015)

herschelsupply

Figure 6: #JanSport name network on Instagram, username word cloud displaying top 50 mentioned names and their counts

4yumishop2[347] 4yumishop3[633] bandarsendal[481] bandarsendaldijamin[472] bandarsendalrp[481] belle_n_keiadd[366]
belle_n_keifollow[366] celiolshop[1621] celiolshopmenjual[1418] demibags[1066] demibagsready[935]

depromotion2[487] depromotion3[560] djotanstore[1060] eighteen19_shop[8372]
gamaleas[489] gamaleaspusatnya[407] goodbag_id[414] goodbag_idcari[414] harvaglory[364] iklan2karynsshop[412]
iklan2_eighteen19[2433] iklan3_eighteen19[1220] iklan4_eighteen19[1388] iklan5_eighteen19[1104]
iklan6_eighteen19[673] iklankarynsshop[2312] iklankaryns_shop[420] iklannya_llshop[1270]
iklan_celiolshop[1417] iklan_eighteen19[1557] iklan_gamaleas[393] insyirashoop[389] insyirashoopdijamin[364]
karyns_shop[3144] lona.gallery[342] missque_id[3491] mqpromote[1125] os_promote_acc[507]
pearlkstyle[577] pib0155g[3508] promosi.acc[696] promote.insyirashop[389] repostapp[3000]
testikaryns_shopopen[3144]

testi_eighteen19contact[8372] yukpromosiyuk4[458] _llshop[1432]
_llshopavailable[1270] _llshopharga[1270]

Figure 7: Instagram network visualization of JanSport's #lifeunzipped (June 11, 2015 - July 12, 2015) - Fruchterman-Reingold layout

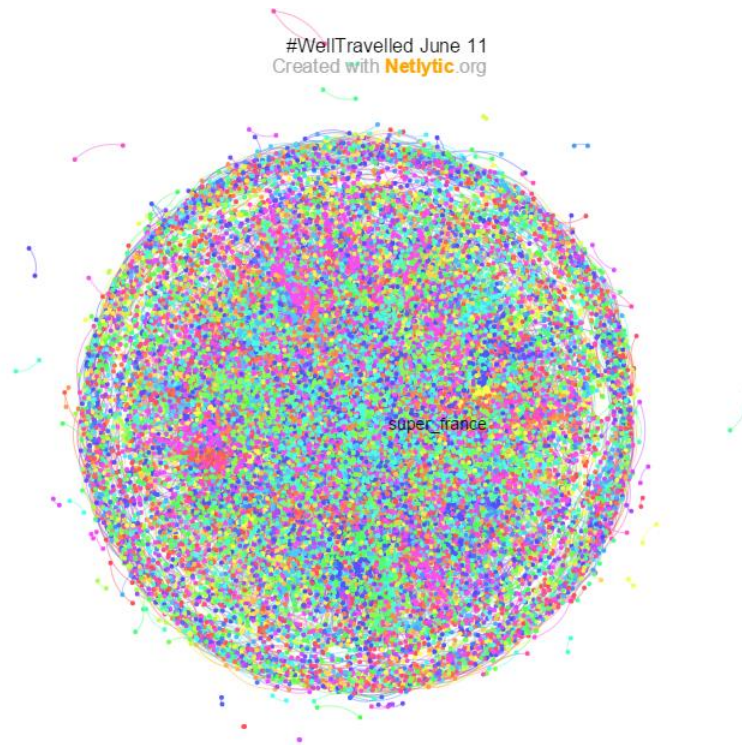**Figure 8: Instagram network visualization of JanSport's #lifeunzipped (June 11, 2015 - July 12, 2015) - Fruchterman-Reingold layout with "Other" peripheral cluster filtered out**
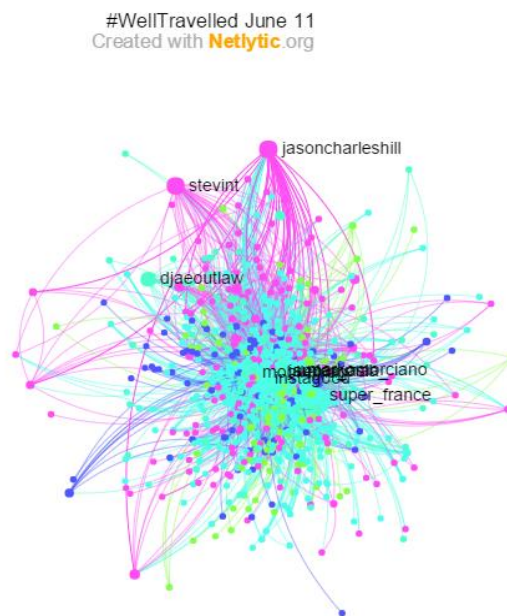
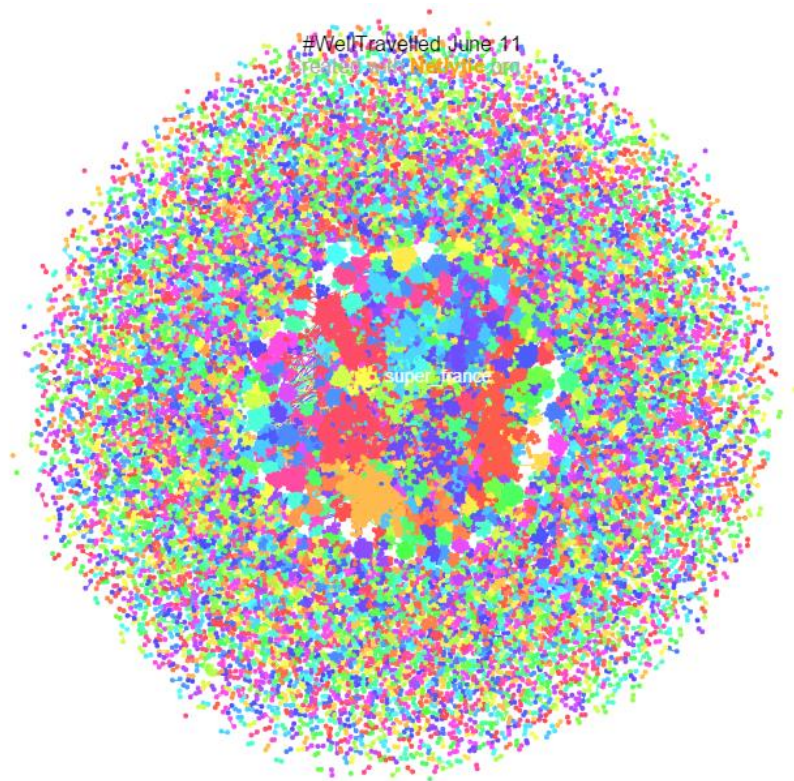**Figure 9: Instagram network visualization of JanSport's #lifeunzipped (June 11, 2015 - July 12, 2015) - DRL layout**
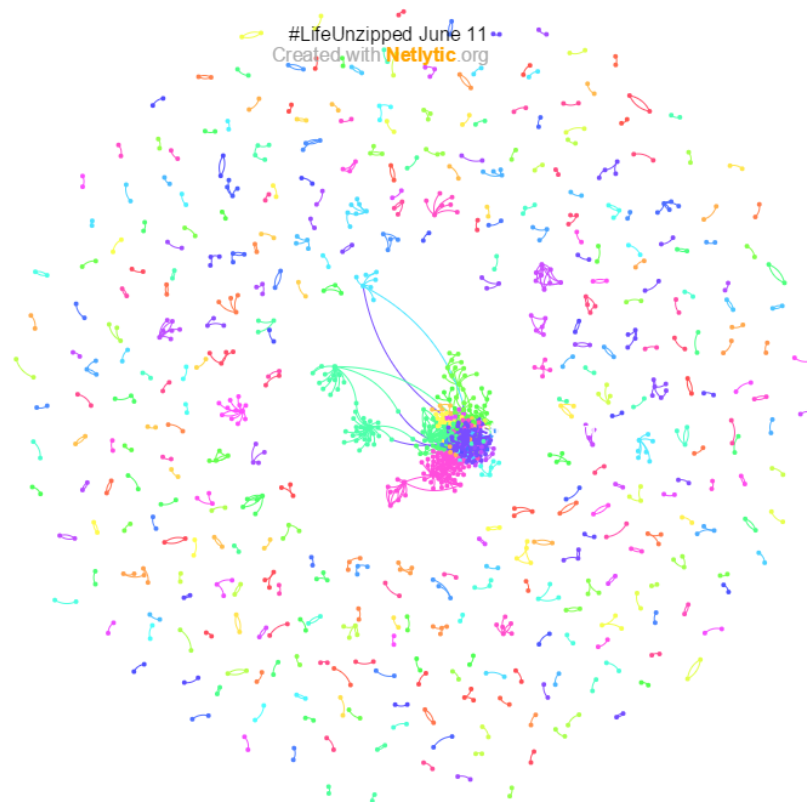
Figure 10: Instagram network visualization of JanSport's #lifeunzipped (June 11, 2015 - July 12, 2015) - LgL layout
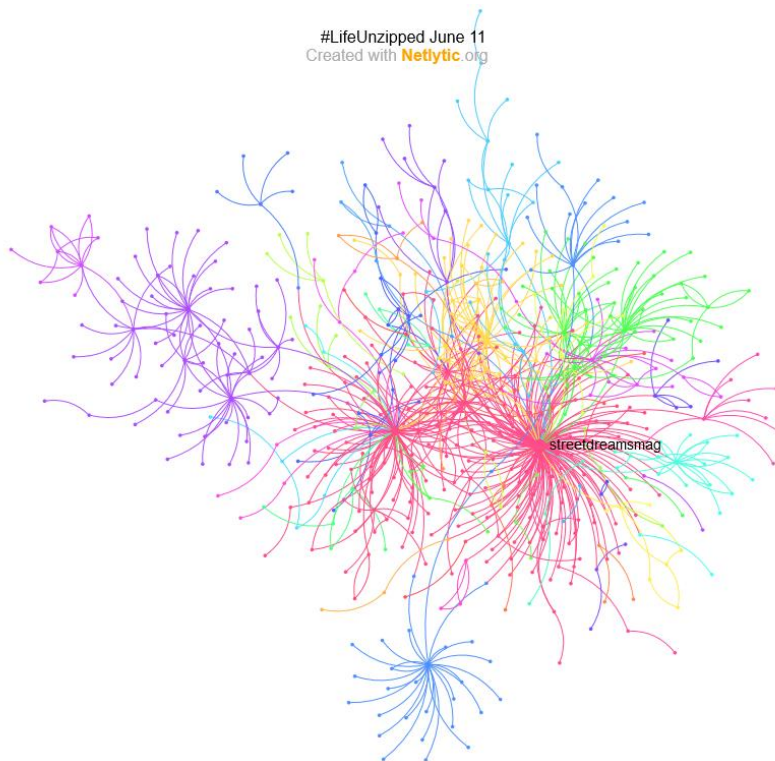
Figure 11: Instagram network visualization of YetiCoolers' #builtforthewild (June 11, 2015 - July 12, 2015) - Fruchterman-Reingold layout
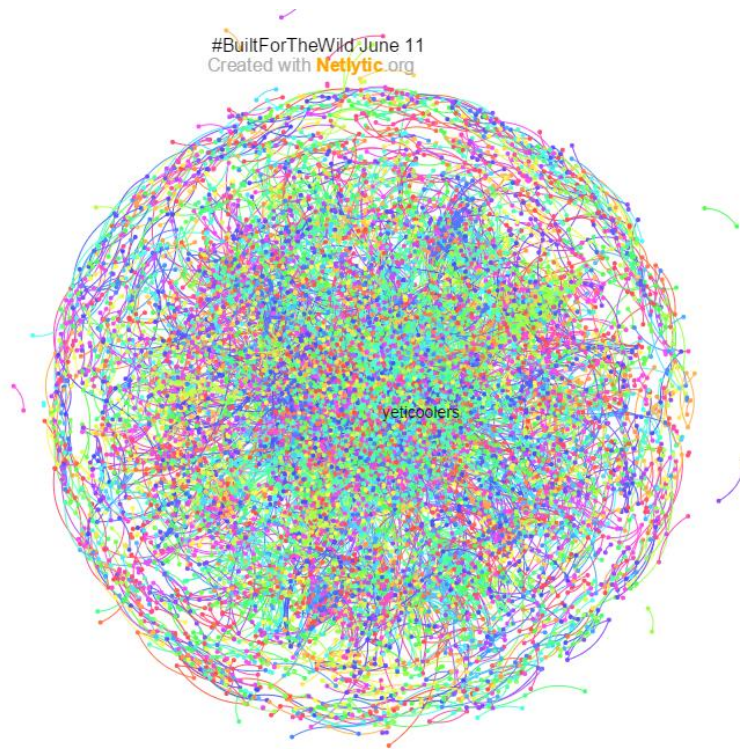
Figure 12: Instagram network visualization of YetiCoolers' #builtforthewild (June 11, 2015 - July 12, 2015) - Fruchterman-Reingold layout with "Other" cluster filtered out
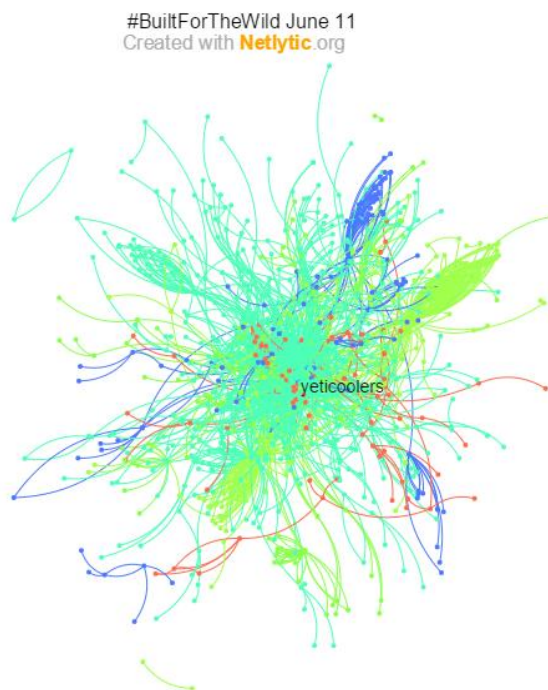
Figure 13: Instagram network visualization of YetiCoolers' #builtforthewild (June 11, 2015 - July 12, 2015) - DRL layout
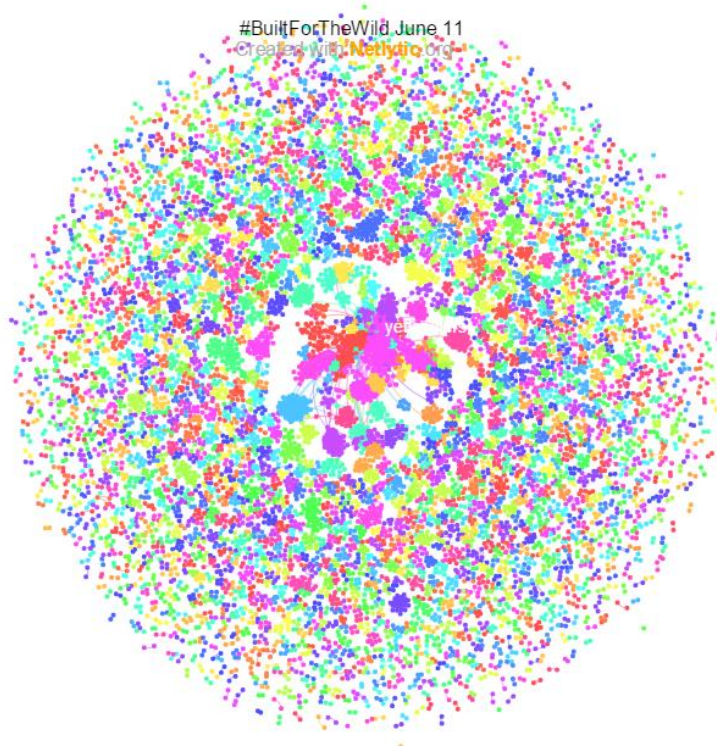
Figure 14: Instagram network visualization of YetiCooler's #builtforthewild (June 11, 2015 – July 12, 2015) – Lgl layout
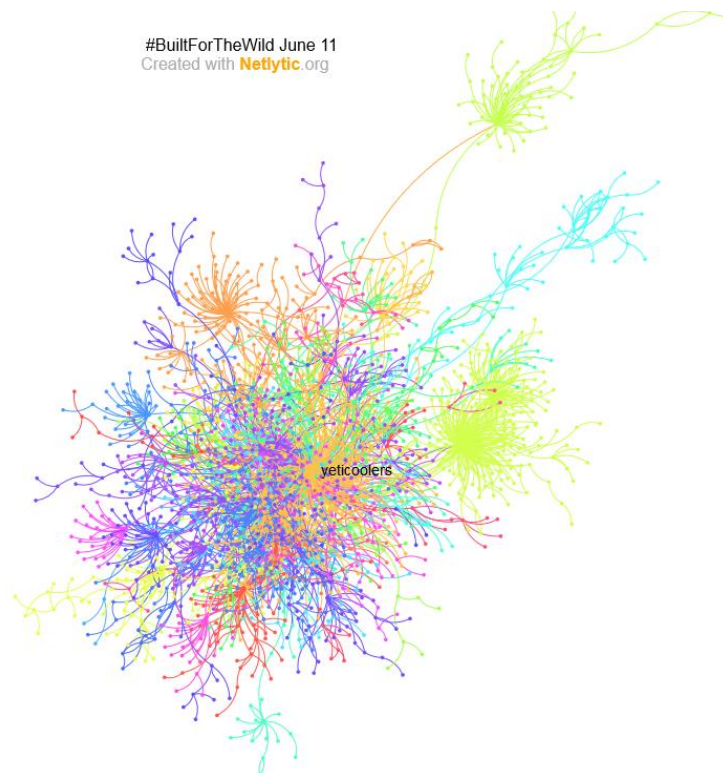
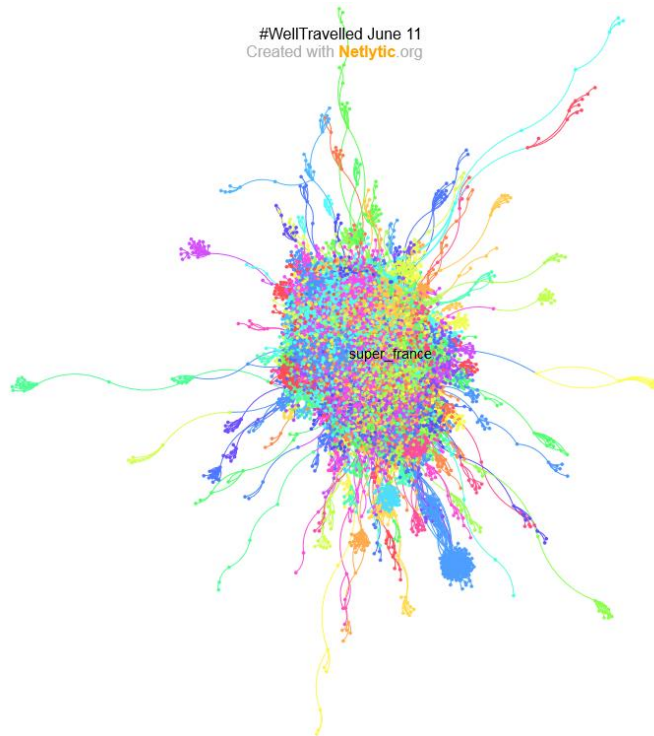**Figure 15: Instagram network visualization of Herschel Supply's #welltravelled (June 11, 2015 - July 12, 2015) - Fruchterman-Reingold layout**

Figure 16: Instagram network visualization of Herschel Supply's #welltravelled (June 11, 2015 - July 12, 2015) - Fruchterman-Reingold layout with "Other" peripheral clusters filtered out

Figure 17: Instagram network visualization of Herschel Supply's #welltravelled (June 11, 2015 - July 12, 2015) - DRL Layout

Figure 18: Instagram network visualization of Herschel Supply's #welltravelled (June 11, 2015 - July 12, 2015) - Lgl Layout

Figure 19: Facebook network visualization of JanSport's fan page (June 11, 2015 - July 12, 2015)

JanSport June 11
Created with Netlytic.org.

jansport
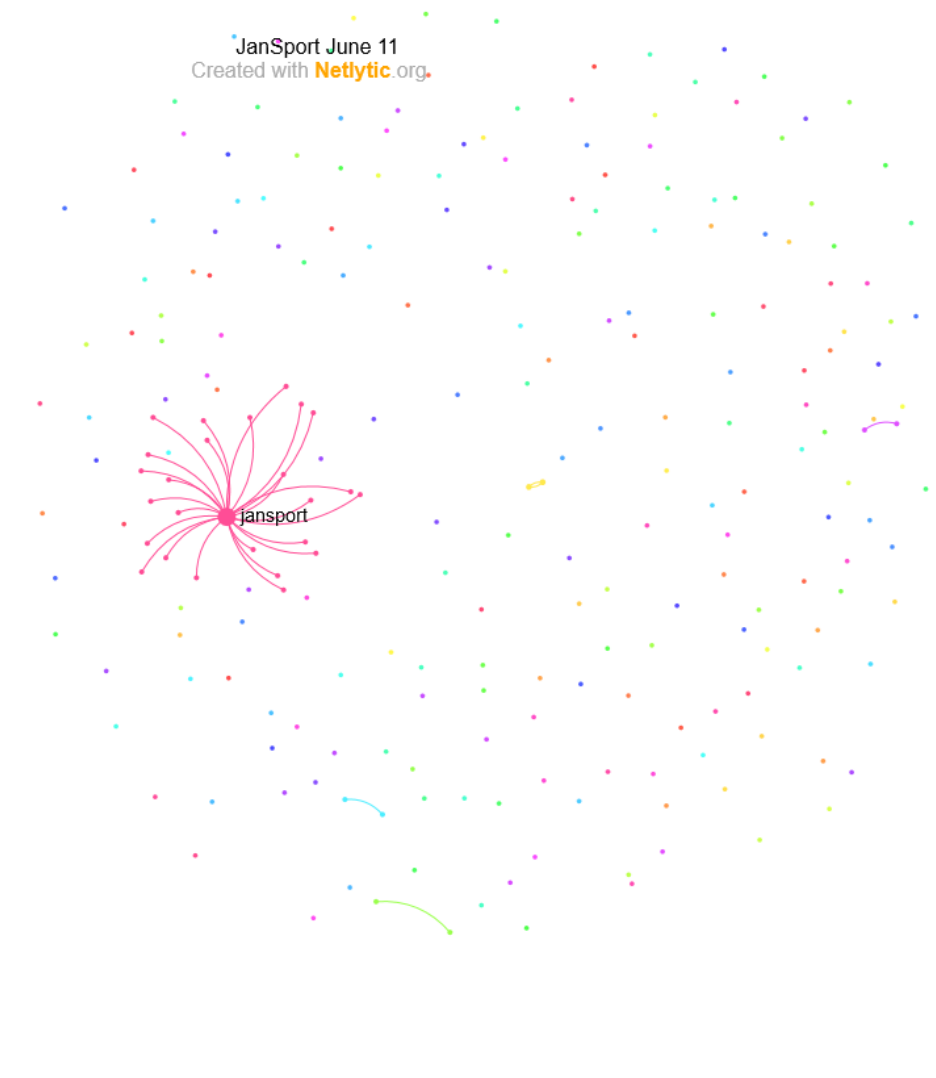
Figure 20: Facebook network visualization of YetiCoolers' fan page (June 11, 2015 - July 12, 2015)
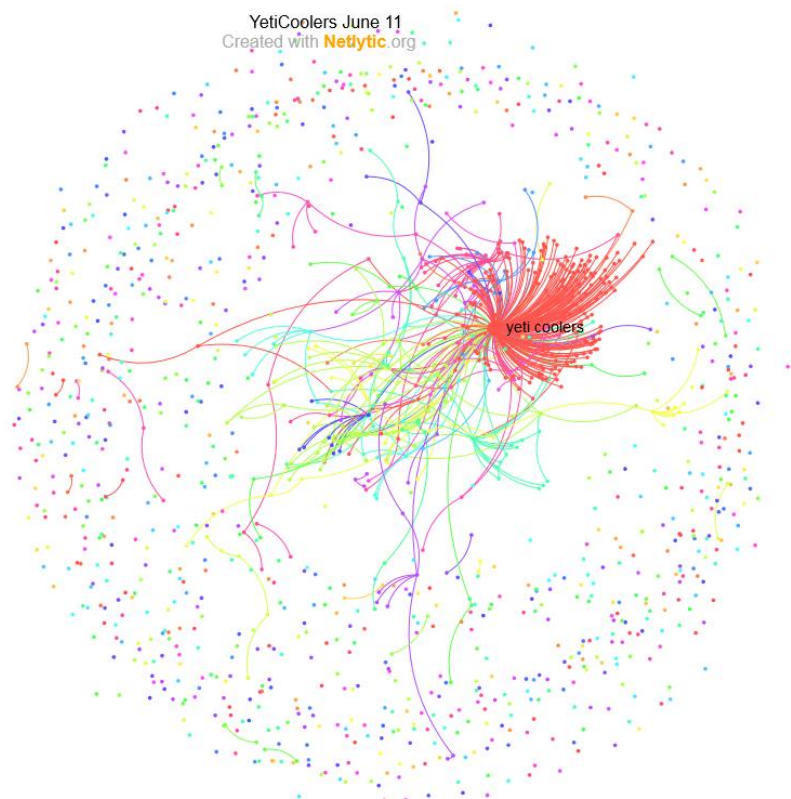
Figure 21: Facebook network visualization of HerschelSupply's fan page (June 11, 2015 - July 12, 2015)
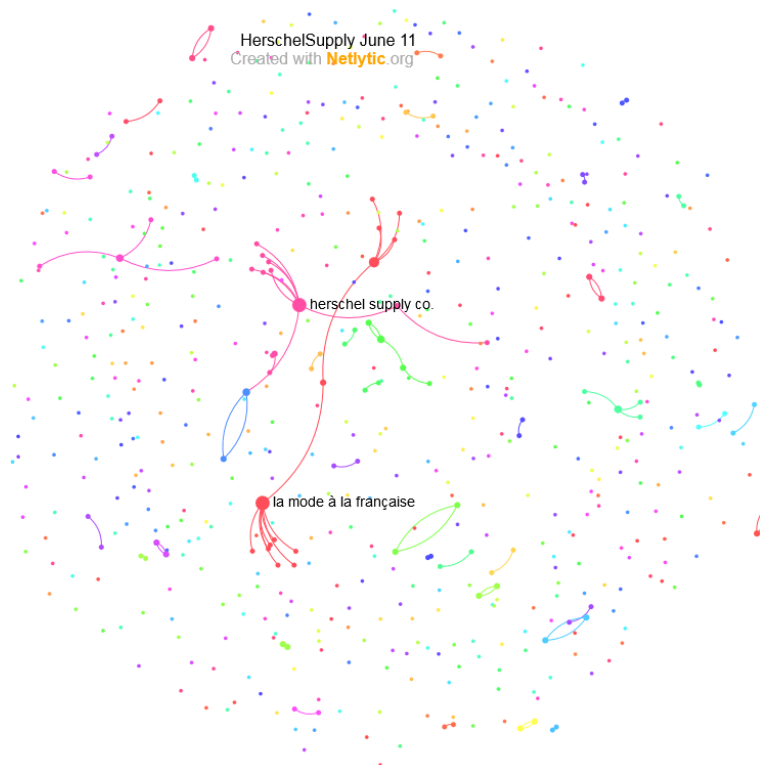
Figure 22: YetiCoolers example "Social" online brand community identification / "cognitive" tweet, June 15, 2015

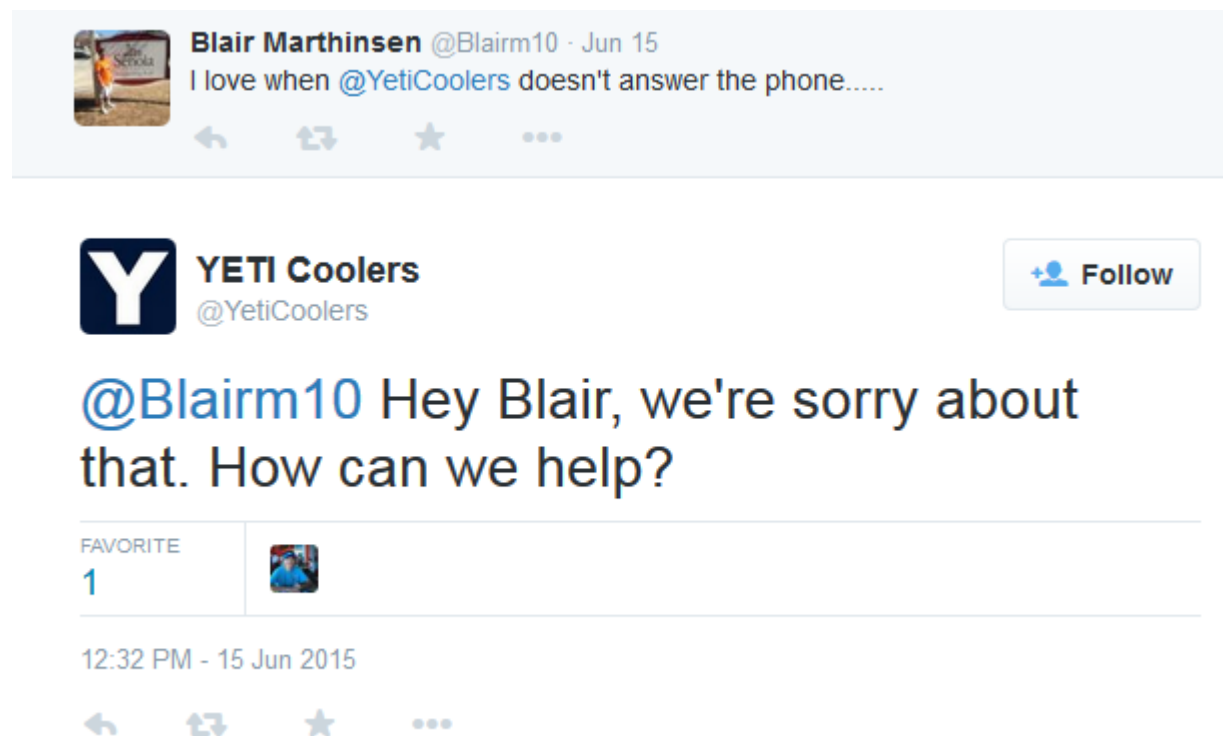**Figure 23: YetiCoolers example "Brand-related / "affective" tweet, June 15, 2015**

Figure 24: YetiCoolers example "community value" / "behavioural" tweet - June 15, 2015

Figure 25. Top ten posters within the #builtforthwild Twitter community (June 11, 2015 - July 12, 2015)
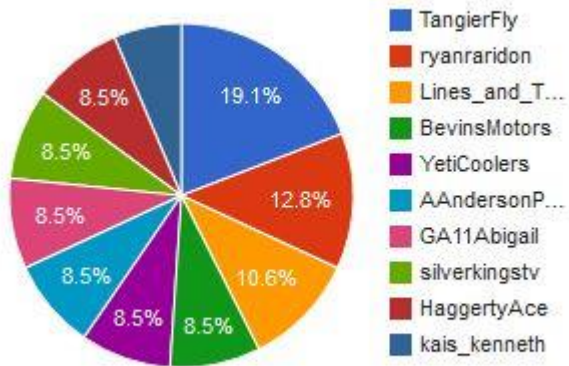

Figure 26. Top ten mentioned users within the #builtforthewild Twitter community (June 11, 2015 – July 12, 2015)
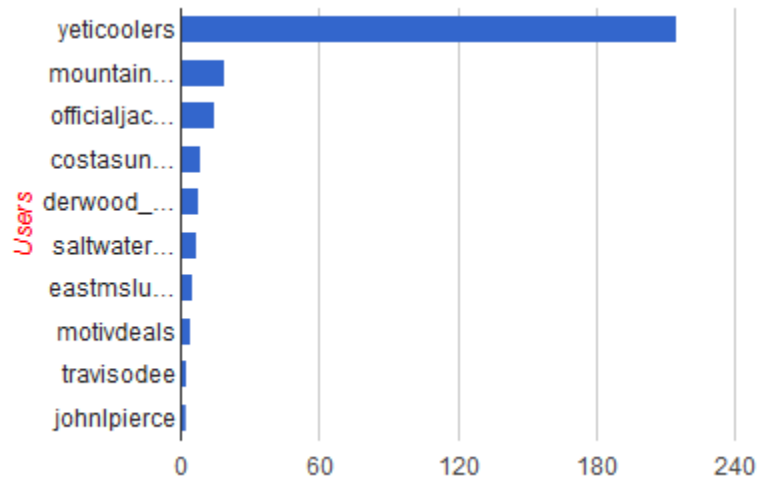
Figure 27: YetiCoolers example "social" online brand community identification / "affective" Instagram post (June 11, 2015)
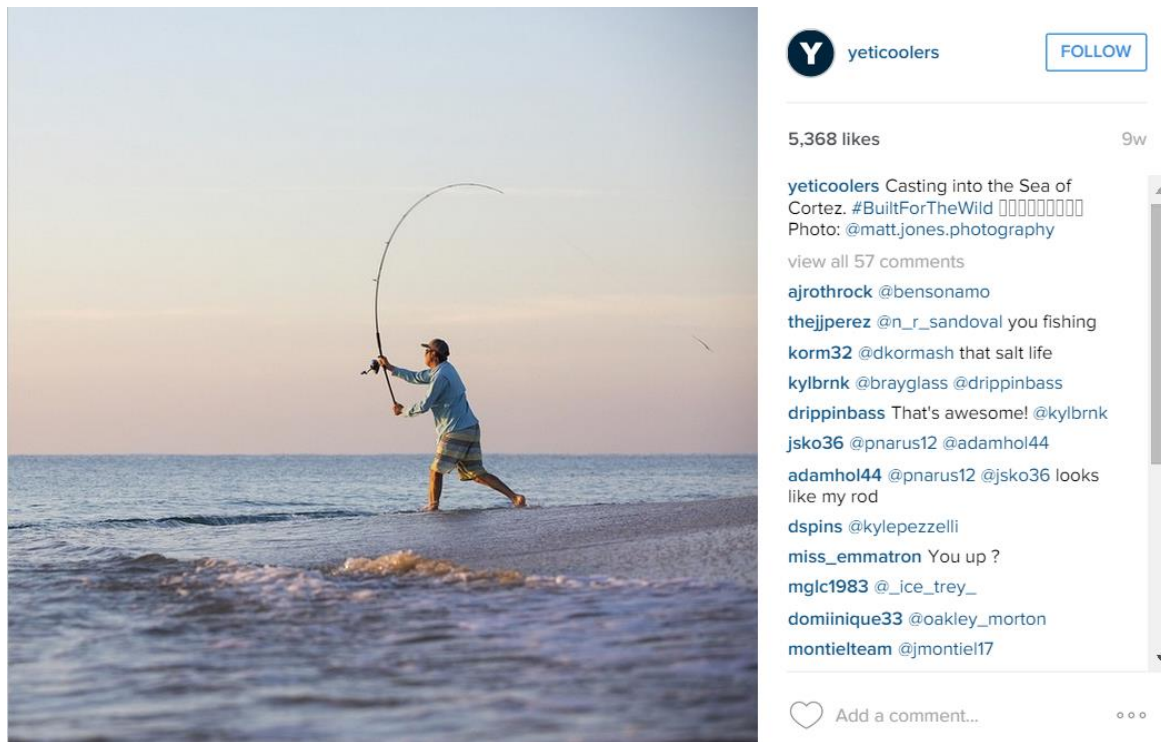

Figure 28: YetiCoolers example "brand-related" / "behavioral" Instagram post (June 30, 2015)

Figure 29: YetiCoolers example "community value" / "cognitive" Instagram post (June 29, 2015)
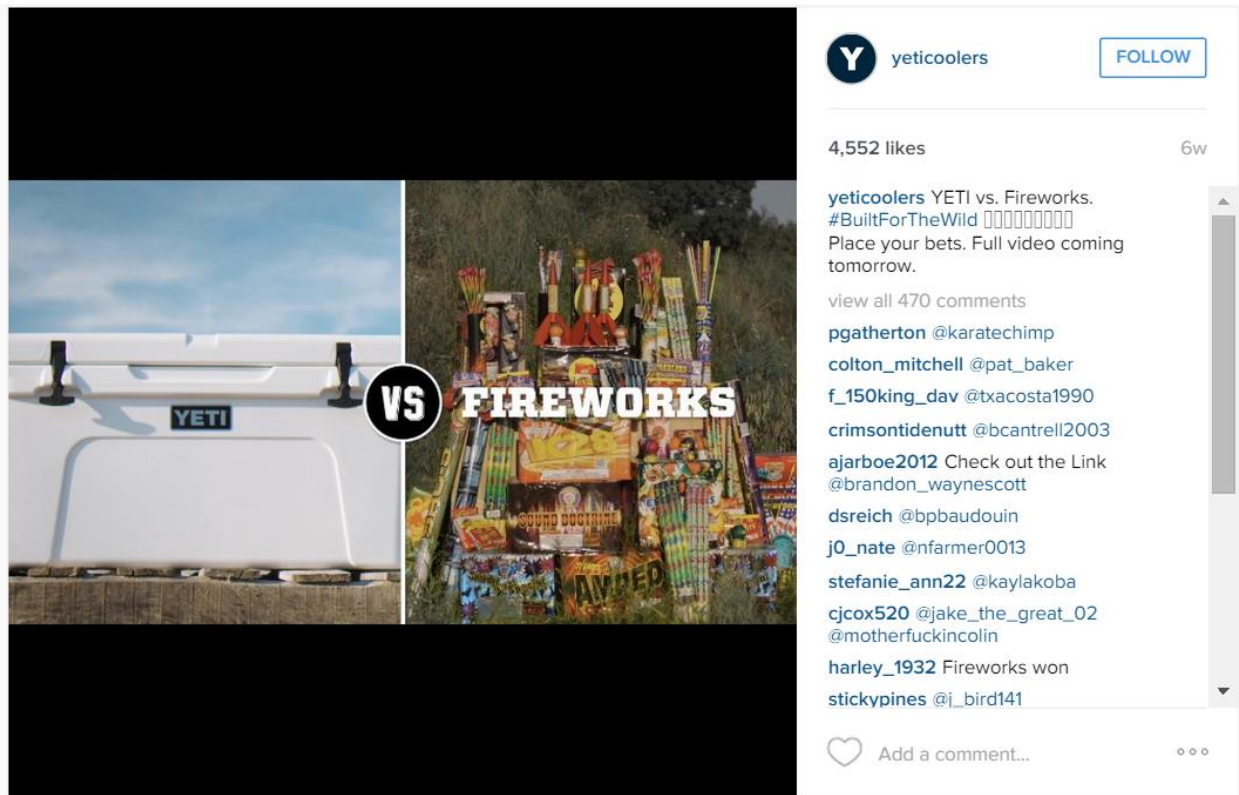
Figure 30, Top ten posters within the #builtforthwild Instagram community (June 11, 2015 - July 12, 2015)
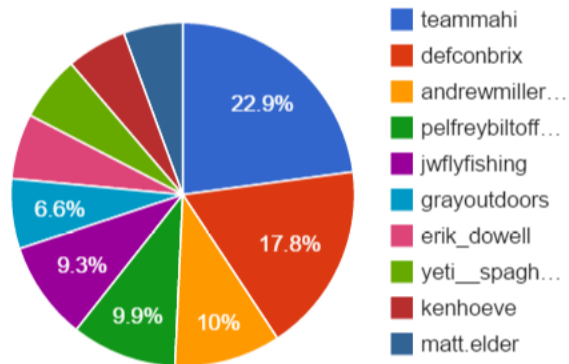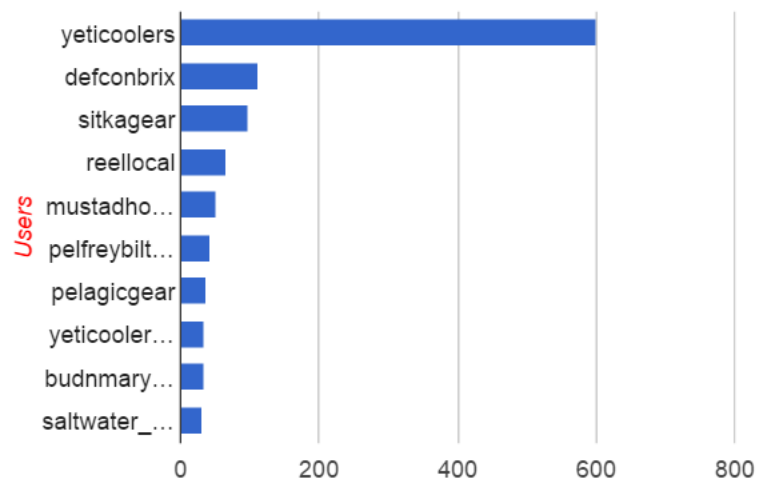

Figure 31, Top ten mentioned users within the #builtforthewild Instagram community (June 11, 2015 – July 12, 2015)

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