



Understanding Drivers of Social Transmission of Information on the Internet

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Nemanja Rodic

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Department of Marketing
Aalto University
School of Business



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Nemanja Rodić

Elina Koivisto

Pekka Mattila

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Aalto University
School of Economics

About the Authors



Nemanja Rodic is an MSc in marketing student at Aalto University School of Business and a marketing teacher at Helsinki Business College. He is passionate about digital marketing communications and consumer behavior on the internet.



Elina Koivisto (M.Sc.) is a researcher at Marketing Department of Aalto University School of Economics. In addition, she is responsible for coordination of research within MediaMark research initiative. Her topics of interest include sustainability and ethicality of consumption, branding, fashion marketing, virtual consumption and business model innovations. She teaches marketing, consumer culture and fashion marketing at Aalto.



Dr. Pekka Mattila is the Associate Dean, Executive Education at Aalto University, the Group Managing Director of Aalto University Executive Education and an Adjunct Professor of marketing at Aalto University School of Economics. He holds a D.Soc.Sc (2006) and M.Soc.Sc. (2003) in sociology at the University of Helsinki and an Executive MBA (2010) at London Business School and has pursued further studies in leadership at Columbia Business School. Furthermore, he teaches frequently executive education courses on change management, leadership and marketing at Aalto EE and also serves as the Program Director of strategic initiatives regarding media businesses and marketing communications at the School of Economics, Department of Marketing. He is a specialist in strategic marketing, marketing communications, services marketing, leadership, change management and strategy implementation.

Executive Summary

The aim of this study is to deepen our understanding of the drivers of social transmission of information on the internet. The information in question, within this research refers to viral messages, thus building on previous findings on word-of-mouth and viral marketing. Viral marketing is any strategy that encourages individuals to pass on a marketing message to others, creating the potential for exponential growth in the message's exposure and influence (Wilson, 2000). Even though much has been written about viral marketing ever since the term was introduced in 1997, there is still a gap in understanding the critical success factors thereof. That is why I have firstly organized the literature published thus far into four streams, complemented these findings with my own from this research and at the end presented several directions for future research.

Firstly, a comprehensive overview of various streams of research in the field is presented – each stream elaborates a different driver of sharing. These are: physiological activation in consumers that lead to sharing, psychological motivations/predispositions for sharing, incentives for sharing and the effect of influentials. Physiological activation refers to the degree of bodily arousal manifested through one's heart rate, blood pressure, changes in electroencephalographic activity etc. In simple terms, these states vary from relaxedness and drowsiness on one end to excitement and euphoria on the other. Psychological motivations refer to predispositions embedded in all of us to varying degrees such as: the need to individuate oneself and stand out and the need to help others. Incentives refer to concrete benefits content consumers may attain by the act of sharing such as monetary compensation or recognition. And finally, the social capital of the previous sharer of a message i.e. influential plays a role in the dissemination of the message as well. This overview is drawn from the literature on viral marketing published in the past fifteen years since viral marketing was introduced. A series of three experiments ensues in subsequent sections during which the effects of some of these drivers are tested.

In experiment 1 the effects of physiological activation and psychological motivation, first two drivers, are compared against one another. The second and third experiments focus solely on activation and test particular qualities of color in advertising material as the trigger of evoked activation in consumers.

The findings show that high physiological activation in individuals leads to more social sharing, regardless whether this activation was achieved through the content that was consumed or prior to content exposure. Essentially this means that excited consumers share more and advertisers should reach them either when they are in this state, or try to achieve this state through content they present them with. Combining both these scenarios into one would perhaps be the best tactic. Some of ad's elements that could be employed to foster

this activation increase are level of color saturation, tempo of music, the number of edits and cuts in videos etc.

At the end, a case study of best YouTube.com vloggers, arguably also the best viral marketers to date, is presented. By analyzing the content they publish, mostly videos, it becomes obvious that they utilize of all of these different drivers of social sharing. When looking at commercial virals, however, one can see that the same tactics are not typical. The case study presented thus is a lesson, a benchmark for advertisers, as the most successful commercial viral campaigns are not nearly as successful as most successful YouTube.com vloggers in terms of viewership/exposure they get.

The research is concluded by a multitude of potential directions for further research. These include looking for the most activating times of day and situations consumers find themselves in, analyzing other ad elements such as background music and editing as drivers of viewers' physiological activation and subsequent social sharing etc.

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1 INTRODUCTION

1.1 Research Background

You are sitting in front of the computer, scrolling through your social connections' updates in your Facebook news feed. Some of the posts amuse you, some irritate you, some you will *like* or *comment* on and then there are those which you will choose to *share*, either in a message or on your *timeline*. Why? What drove you to share this post specifically? Is it so amusing that the rest of the world should know about it? Does it say something about you? Will you somehow be awarded by sharing it? Maybe all, or none of the above? Beyond just Facebook, internet hosts a plethora of other venues for interpersonal communication/social transmission of information, such as e-mail, YouTube and Twitter, to name a few. What gets shared/talked about the most and why? Knowing this, for companies, means knowing how to initiate word-of-mouth on this instantaneous and far reaching platform. That is what this research is concerned about.

It has been nearly 20 years since the popularity of internet started to increase exponentially leading up to today when it is almost impossible to imagine one's life without it. The purposes which we associate to it range from information-seeking and education to communication, entertainment and beyond. In addition to this, it has irreversibly altered the ways in which we consume marketing messages resulting in concepts such as viral, social media and search engine marketing, to name a few.

As a result of this, companies are integrating internet platforms into their marketing communications efforts. This comes in various forms including building fan communities on social media platforms, setting up blogs, doing search engine optimization etc. One of the main ways in which these approaches differ from pre-internet advertising methods is the possibility of two-way communication with consumers (through online brand communities) as well as having those consumers act as powerful, and in most cases free of charge, marketing message dissemination media. While this closeness and directness opens up a variety of possibilities such as fostering brand loyalty (Luettger, 2008), it has a downside too. Consumers of Generations X and Y are jaded (Dobele et al.2007) and perceive advertising as

somewhat of an annoyance. Internet thus could not only be a new advertising channel, but rather the nature of advertising on it has to somewhat change. This drives marketers to come up with new ways of reaching consumers such as viral marketing, an electronic extension to word-of-mouth advertising. When executed effectively, viral marketing can create an instantaneous buzz in the promotion and distribution of companies' brands and products (Dobele et al.2007). For instance, without the internet, the rumor of *The Blair Witch* film being a true story, initiated by the producers of the film themselves and perpetuated by internet users, would otherwise never have reached the global audience it has. Once the film was premiered, the adoption was quick and resulted in \$245 million gross earnings, the highest ROI in film industry ever considering the film's initial budget of \$2,5 million (Dobele et al.2007)

According to a study by ComScore, Europeans spend on average nearly one hour browsing the internet every day (ComScore, Inc. *Overview of European Internet Usage in September 2011*). This time will probably increase with the rising popularity of smartphone devices which enable one to be constantly connected to the internet within the area covered by the cellular network. Besides the above mentioned uses of it, some *offline* behaviors such as social interaction are being transferred to this medium (Richard and Chandra, 2005). This includes various social uses of advertising (Ritson and Elliott, 1999), the difference being the scope of the audience one can communicate to and the immediacy of information transmission. Part of these social interactions is inevitably sharing one's opinion on products and brands as either recommendations or negative word-of-mouth. This is a great opportunity and a challenge for marketers at the same time due to the power word-of-mouth communications hold. Many studies have demonstrated this power, as either positive or negative to brand equity (Briggs, 2009; Richins, 1983). The power of WOM is partially to be attributed to a higher degree of credibility consumers associate to it as opposed to marketer-initiated communications. This is because WOM is perceived as having passed through the unbiased filter of "people like me" (Allsop et al.2007). Hence, it is highly important to understand the motivations for engaging in WOM communications.

Plenty of research had been done in the past fifteen years with the aim of better understanding these motivations. The research thus far approached this issue from a variety of angles including analyzing psychological motives one may have in order to engage in viral

marketing, the physiological states one is in when engaging in viral marketing etc. Creating a comprehensive overview and deeper understanding of these various motivations is what this research is concerned with. Just by looking at various successful viral campaigns one can see that they are, content-wise, different from the content of ‘traditional’ advertising campaigns. If marketers had the insight regarding the ‘strongest’ triggers, they could more carefully craft the campaigns they wish to *go viral*. This research will thus attempt to complement the previous research efforts and shed some light on the issue of triggers/drivers of virality or marketing communications content.

1.2 Research Objectives

A number of research projects to date dealt with the motivations for sharing online content. Most of them were aimed at understanding either the psychological motives or physiological states that lead to one sharing online content. The findings of these research efforts are rather intuitive and show that psychological motives such as *need for attention* (Ho and Dempsey, 2011) or physiological states such as high-arousal (Berger and Milkman, 2011) lead to virality. However, a deeper understanding is needed as it remains to be seen for instance which of these two is a stronger trigger of virality or how can a desired physiological response be elicited in consumers through carefully crafted content. Another way to look at it is to answer the question of how much of social transmission of information is motivated versus unmotivated (conscious versus unconscious). Motivating content that results in conscious sharing would be that which resonates with a certain visceral psychological motivation/predisposition, such as need for attention (Ho & Dempsey, 2011), wanting to help others (Phelps et al.2004), seeking retaliation/venting (Cheung et al.2007) etc. Unconscious, unmotivated sharing is when the act of sharing was triggered by the physiological state provoked by the content. The physiological states a human being can be in range from de-activated (low arousal) to highly-activated (high arousal). These are manifested through cardiovascular responses, facial muscles expression, electroencephalographic (EEG) activity etc. (Cacioppo & Petty, 1985). Each emotion is associated with a certain physiological state – for instance, anger is a highly activating emotion (Berger & Milkman, 2011). Unlike sadness, it results in heightened blood pressure

and increased heart rate (Berger & Milkman, 2011). In simplest terms, it means that an advertisement containing *dramatic* elements, such as explosions, loud sounds etc. is more likely to be shared than one which is soothing. This, however, has not yet been found for advertising material, but for newspaper articles, films and other types of content, the consumption of which is longer in time than that of advertising.

Singh and Churchill (1987) have studied the effects of arousal as a result of TV programming on behavior and attitude towards the brand whose ads are displayed in the commercial breaks. They found that when exposed to ads in a state of high arousal, viewers exhibit higher ad/brand recognition and recall. It is important to note here that this state of high arousal did not come from the advertisement itself, but rather the programming that preceded it. A study which attempted to make a link between priorly attained physiological activation and subsequent social sharing was a lab experiment conducted by Berger (2011). The group of respondents who were jogging while being exposed to content as opposed to those who were standing still, expressed greater intentions to share about the content within their social networks (Berger, 2011). Unlike with TV advertising, internet advertisements can be instantaneously shared with large audiences among one's online social network connections with a click of a button. So, the question becomes: when exactly is one physiologically activated while using a computer?

Naturally, marketers, when making a campaign for which they wish to go viral, can and should strive to make it both psychologically motivating and physiologically stimulating to be shared, as these two do not exclude, but complement each other. Nevertheless, it would be interesting and important to know which of the two is mostly responsible for the sharing behavior as well as how to craft content that triggers these drives.

Another focus of this research will be to better understand specifically the effects of physiological activation on sharing of online content. If physiological activation results in social sharing of information (Berger, 2011; Berger and Milkman, 2011) then the question becomes: does this apply to advertising content as well. In their study, Berger & Milkman (2011) measure how physiologically activating text is, through pretests and by using an activation index they have developed. They then develop two versions of the same story, one

physiologically highly activating and one deactivating. In simple terms, one of the stories is toned down, without many dramatic elements and with few consequences. The other version of the story is highly dramatized, with severe consequences and it is told using ‘stronger’ words. A similar approach will be undertaken in this study, while focusing specifically on advertising content and on colors as opposed to copy (a more detailed description on why colors are being used as a catalyst for different level of achieved physiological activation in *Viral Content* section; technical explanation of color manipulation in *Method* section.)

These objectives will be tested through three lab experiments. The questions which these experiments will address are discussed in the section below. The specifics of the research methods can be found in the method section.

1.3 Research Questions

The three experiments which are to be conducted will attempt to shed light on motivations consumers have for sharing online marketing communications content. All three are laboratory experiments.

EXPERIMENT	QUESTION
Experiment 1	<p>Which is a greater driver of online marketing communications content sharing behavior: psychological motives or physiological states?</p> <p>H1a: psychological motivation is a greater driver of online marketing communications content sharing behavior</p> <p>H1b: physiological activation is a greater driver of online marketing communications content sharing behavior</p>
Experiment 2	<p>H2: High physiological activation results in increased sharing of online marketing communications content</p> <p>H3: Highly saturated (with high level of chroma) colors in advertising images result in greater sharing of online marketing communications content</p>
Experiment 3	<p>H4: Highly saturated (with high level of chroma) colors in advertising videos results in greater physiological activation in viewers</p> <p>H5: Highly saturated (with high level of chroma) colors in advertising videos result in greater sharing of online marketing communications content</p>

Table 1 – Research questions

1.4 Terminology

Word-of-mouth (WOM) - a form of interpersonal communication among consumers concerning their personal experiences with a firm or a product (Richins, 1984)

eWord-of-mouth (eWOM) – any positive or negative statement made by potential, actual or former customers about a product or company, which is made available to a multitude of people and institutions via the internet (Hennig-Thurau et al.2004)

Viral marketing - informal, peer-to-peer electronic exchange of information about an identifiable product or service (Cruz and Fill, 2008); in everyday language terms *viral* and *eWord-of-mouth* are used interchangeably.

Virality – the occurrence when internet users assume the role of message dissemination media within their online social networks.

Going viral – an immeasurable and hard-to-define point at which a message, a commercial one or otherwise, reaches a critical mass of internet users who then by passing it on, create the viral effect analogous to the spreading of a virus

Opinion leader (influential) - an intermediary who is likely to influence other persons in her immediate environment (Katz and Lazarsfeld, 1955)

eFluential (eMaven) – internet users who are more ready to engage in eWOM (Ho and Dempsey, 2010); in practice it is the same as *influential/opinion leader*

Content – the object that is shared in interpersonal communication, face-to-face or through various media (social media, SMS etc.). The types of content are varied and include text, meanings, video, pictures, sounds, games etc.

Physiological activation – the degree of bodily arousal manifested through one's cardiovascular responses, facial muscles expression, electroencephalographic (EEG) activity etc. (Cacioppo & Petty, 1985). Physiological states vary from de-activated (or lowly activated) to highly activated. Emotions associated with high physiological arousal/activation are anger, disgust and excitement while those associated with physiological de-activation/lack of arousal are sadness and the feeling of mellowness (Berger & Milkman, 2011). In literature, terms

activation and *arousal* are used interchangeably. I will do so the same way throughout this research.

Emotions – feeling states with physiological, cognitive, and behavioral components (Carlson & Hatfield, 1992). Response dispositions or action sets (Lang, 1984). Lang, Bradley and Cuthbert (1990) define emotion as the disposition to act, rather than the act itself. For this research in particular, the consequent act of felt emotion would be social sharing or the intent for it. This however will not be included in the experiment design as emotional experiences will be regarded only through the prism of physiological arousal they are associated with. For instance: all high arousal emotions (anger, excitement, terror) lead to high virality, regardless of the particular type of emotion in question (e.g. its valence).

Psychological motives for sharing online content – various psychological motives for sharing online content have been identified in the literature including need for attention and affection (Ho and Dempsey, 2011), altruistic needs such as helping other consumers (Cheung et al.2007) and helping the company (Hennig-Thurau et al.2004) etc. These are further discussed in the literature review.

Chroma - one of three dimensions of color, others being *hue* and *value* (for more, see Gorn et al.1997). It is the amount of grey in any color. The more grey there is in it, the lower chroma value of it is, and vice versa. Term which is used interchangeably with chroma is saturation, and I will be using them both throughout this research, interchangeably. The more de-saturated (low chroma) the color is, the more grey is in it – in practice it means that it appears greyish, sometimes dull and creates a feeling of relaxation in the viewer (e.g. pastels are de-saturated versions of colors and are thus often used when decorating living space interior). The more saturated the color is, the less grey there is in it and it appears to be more rich, pure and radiant. If maximally saturated, colors are attention-grabbing, appear to be strong and even psychedelic if there are many different colors on a small surface. Such colors evoke a physiological reaction in viewers such as tenseness and attentiveness.

Vlogger – a video blogger. Instead of writing diary-form posts, these individuals record themselves and publish videos. They usually publish their content to YouTube.com, the content sharing and social networking website. YouTube.com allows vloggers to create

multiple channels which are usually differently themed and to which vloggers publish at different intervals (daily, weekly etc). In a way, it is a miniscule form of television entertainment in the form of user-generated-content.

1.5 Outline of the Study

The following section is an exhaustive overview of the academic literature related to the topics of viral marketing and drivers of sharing viral content. The overview of drivers of sharing online content is extensive and includes some research streams which were not directly related to the focus of this research, such as monetary incentives as drivers of sharing. Nevertheless, I have attempted to create a comprehensive overview of all of these for the sake of better understanding of all these phenomena as well as which piece of the puzzle this particular research presents.

The literature review is followed by the methodology section which justifies the chosen method, consumer experiments, as well as elaborates the paradigmatic stance of this paper. After that, the research method is presented, explaining the experiment design and the reasoning behind it. This is followed by the findings section and discussion on theoretical and managerial implications of the study. The thesis is concluded with limitations and directions for further research sections.

2 LITERATURE REVIEW

2.1 Progression of Concepts: from Word-of-Mouth to Viral Marketing

Word-of-mouth has received a great deal of attention, both in theory and practice. Katz and Lazarsfeld (1955) were amongst the first to recognize the value of this form of interpersonal communication. In their book 'Personal Influence' they challenge the prior understanding of mass media as the omnipotent, direct and unobstructed tool for disseminating information. They established the notion of an *influential*, an intermediary who is likely to influence other persons in her immediate environment. The model that Katz and Lazarsfeld proposed was the 'two-step flow' in communication model whereby the information pushed by the institutionalized media is appropriated, interpreted and further disseminated through influentials. The influentials or opinion leaders are those who set the tone of subsequent word-of-mouth communications and through their sharing of information on a particular topic decide how much attention will be directed towards it. Katz and Lazarsfeld found word-of-mouth communications to be seven times as effective as newspapers and magazines, four times as effective as personal selling, and twice as effective as radio advertising in influencing consumers to switch brands (Brown and Reingen, 1987).

Since then, these findings have been corroborated many times. For instance, Coleman et al. (1957) examined the diffusion of innovation among doctors introduced with a new prescription drug and observed that diffusion was first carried out by doctors immersed in the professional communities acting as advisors or discussion partners. Quickly afterwards, diffusion happened through the friendship network to doctors who were closely tied to the medical community through their friendship relations. Lastly, the drug was adopted by the remainder of the medical community, specifically by the doctors who were 'isolated' from it by means of social networks (Coleman et al. 1957).

Another example is that of Arndt (1967) who demonstrated a correlation between exposure to positive word-of-mouth and actual purchase behavior. In his study he found that of all respondents who were exposed to positive WOM, 52% made an actual purchase, while out of all of those who were not exposed to any WOM, 42% made a purchase. In addition to

this, the receivers of unfavorable word of mouth were 24 % less likely to buy the new product as opposed to those receiving favorable word of mouth who were 12 % more likely to buy (Arndt, 1967).

A further development in the understanding of the concept of word-of-mouth was the study of Richins (1983) who was among the first to separate word-of-mouth from diffusion of innovation and analyze the effects of interpersonal communications about already existing products. More specifically, in her study she focused on the destructive power of negative word-of-mouth. Through in-depth interviews initially and survey questionnaires subsequently she collected data on consumer dissatisfaction and resulting dissemination of negative WOM. Richins found that 57,2 % of dissatisfied consumers engaged in negative WOM dissemination. This study was also one of the first ones to shift the focus from influentials to non-influentials and thus acknowledged the importance of understanding the WOM dissemination motivations of this group of consumers i.e. the majority.

Throughout the 1990s, the number of internet users was growing exponentially altering ways in which we communicate and socially interact. In 1997, Juverston and Draper introduced the term *viral marketing* referring to the way in which Microsoft Hotmail, online e-mail service, *recruited* new users. This was by automatically embedding an invitation to use the service at end of each e-mail sent. In the past 15 years much has been written about the progression from word-of-mouth to viral marketing and many synonyms have been used to describe it, including: viral marketing (Juvertson, 1997), buzz marketing (Thomas, 2004), word-of-mouse (Goldenberg et al. 2001), viral stealth marketing (Swanepoel et al. 2009), referral marketing (De Bruyn and Lilien, 2004), viral advertising (Porter and Golan, 2006) etc.

Krishnamurthy (2001) claims that the goal of this new form of marketing communications is to use consumer-to-consumer (or peer-to-peer) communications, as opposed to company-to-consumer communications, to disseminate information about a product or a service, hence leading to its rapid and cost-effective market adoption. Phelps et al. (2004) simply define it as a process of encouraging honest communications among consumer networks.

The emergence of social media (e.g., Facebook, Twitter) has been another milestone in this progression of concepts. Social media is an ideal platform for word-of-mouth dissemination as most information is automatically transmitted to all social connections. Promotion on these platforms is viewed as cheaper and more effective than traditional media, but their utility hinges on people transmitting content that helps the brand (Berger and Milkman, 2011). As internet is becoming more social, it is likely that viral marketing is here to stay.

Features of WOM which remain unchanged over time are the absence of marketers' control in how the message persists and the cost efficiency of this tool. The first one refers to the *two-step* flow proposed by Katz and Lazarsfeld (1955) – it is same nowadays in so that marketers create and publish content and with that their control ends (unless they resort to stealth marketing tactics such as seeding and product placement). Beyond this point, the media of dissemination i.e. message consumers, control how it spreads further on. As for the second one, several examples of this cost efficiency were presented in preceding sections. If done right, viral marketing, the digital progression of WOM, can result in much greater ROI than any other marcom method.

2.2 The Act of Sharing Information

One of the most widely accepted notions in consumer behavior is that word-of-mouth communication plays an important role in shaping consumers' attitudes and behaviors (Brown and Reingen, 1987). Among the many and varied channels through which consumers may receive information, it is hard to imagine any that carry the credibility and, thus, the importance of interpersonal communication, or word-of-mouth (Godes and Mayzlin, 2004). Understanding consumers' willingness to engage in WOM is therefore essential to knowing how to manage it.

Internet has changed the way we communicate within our social networks; including the way we share WOM. This is why this research will focus on the sharing of viral messages only i.e. sharing of online content (eWOM). Various studies have been conducted trying to understand consumers' motivations for sharing virals (see Table 2). These studies can be grouped into following 4 streams of research: content that creates the viral effect, sharing

triggered by internal motivations, sharing triggered by external motivations and finally, the role of influentials and the perceived credibility of the message source.

These research streams are presented in the table below:

Research stream:	
1. Content that creates the viral effect	Dobele et al.2005 Dobele et al.2007 Brown et al. 2010 Berger and Milkman, 2011 Eckler and Bolls, 2011
2. Internal motivations/predispositions	Phelps et al.2004 Hennig-Thurau et al.2004 Cheung et al.2007 Ho and Dempsey, 2010 Camarero and San Jose, 2011
3. External motivations (incentives)	Hennig-Thurau et al.2004 Swanepoel et al.2009 Kozinets et al.2010
4. Influentials	Phelps et al.2004 Watts and Dodds, 2007 Kozinets et al.2010 Katona et al.2011

Table 2 - viral marketing research streams

2.2.1 Viral Content

Certain types of content are more viral than others. Which qualities of marketing messages are those that trigger the willingness in consumers to share them? If we observe most successful non-commercial virals, we can see that one of the connecting themes is risqué content. Companies, however, cannot afford to embed just any type of content in their advertising, with their brand's reputation on the line.

Eckler and Bolls (2011) approached this problem from the information processing perspective. Their goal was to understand how the valence of a marketing message affects the intent to forward it. In their study they use viral videos of varying emotional tonalities (pleasant, coactive and negative) and measure attitudes toward the ad and the brand and the

consequent intent for forwarding. They find that pleasant emotional tone elicits the strongest attitude toward the ad, attitude toward the brand, and intention to forward. The effects are weaker for coactive tone and weakest for negative emotional tone (Eckler and Bolls, 2011). The videos they used in this research are all commercial viral videos. Through their findings, they challenge the notion that risqué content is enough to make a message viral, at least when it comes to commercial virals. Positive tone plays an important role as well.

The study of Berger and Milkman (2011) corroborates these findings and builds further on them. In their study, they examine physiological reactions to online news articles' content and the resulting intent to forward. They observe the sharing patterns of readers of New York Times articles. The articles used as stimuli are of different activation levels and different valence extremes (high-arousal positive, high-arousal negative, low-arousal positive and low-arousal negative). They find that positive content is always more viral than negative, thus validating the findings of Eckler and Bolls (2011). However, they point out that virality is not only a matter of valence. The more activating the content is, the higher the chance it will be forwarded. Thus they demonstrate that the most viral type of content is that which is both positive and highly activating. The likelihood of negative content getting shared would increase with the level of activation the particular emotion elicits (going from sadness as lowly activating to anger as highly activating).

In practice, this means that content which is most likely to be shared is awe-inspiring content (a positive, activating emotion), followed by anger and anxiety-inducing content (a negative, activating emotion). The type of content which scores least on the likely-to-go-viral scale, is negative-deactivating. This refers to content which evokes feelings of sadness.

Another research which deals with emotionality of marketing messages and the resulting virality is that of Dobeles et al. (2007). In their study, they analyze how viral message's emotional tone affects recipients' emotional responses and subsequent forwarding behavior. They use the typology of 6 primary emotions: surprise, joy, sadness, anger, fear and disgust (Izard, 1977). The campaigns which they analyze are 9 global, successful viral campaigns (Dr.Pepper/Seven Up: Raging Cow, Honda Accord etc.). Their findings show that messages evoking surprise are most likely to be forwarded. The other five emotional responses can lead to virality as well, especially if combined with surprise. Essentially, it depends on the

brand and the context. For instance, they show that fear and anger, even though potentially dangerous ingredients in most brands' marketing communications messages, are in fact good in certain situations. These include public service announcements such as voting in an election, preservation of the environment or human rights' issues.

The same applies to disgust-based campaigns. Dobele et al. (2007) show how a specific demographic e.g. young males, responds rather favorably to disgust. At the same time, they show through an example (Christmas Card campaign by e-Tractions) how, a disgust-based campaign led to virality but a negative attitude towards the brand. Even though e-Tractions removed the advertisement from their website, its virality persisted as it was still being shared. This means that marketers must understand that achieving viral effect is secondary compared to brand image and the marketing objective behind the campaign in question. The emotional response most 'on the safe side' is joy. Evoking joy can be achieved through humorous or idealistic content (Dobele et al.2007).

According to the authors, the connecting strand among all these types of emotions and virality is the element of surprise. The emotion of surprise is generated when something is unexpected or misexpected, with surprise resulting in responses of amazement and astonishment (Ekman and Friesen, 1975). This is in line with the previously discussed findings of Berger and Milkman (2011), as surprise is in fact a high level of activation emotion of either valence, positive or negative.

Based on the findings presented so far, the safest bet for marketers attempting to create a viral campaign would be to make a high-arousal, positive piece, evoking the feeling of joy and containing an element of surprise. However, that probably describes a large portion of advertising published on a daily basis, most of which does not become viral. Moreover, Porter and Gollan (2006) characterize viral marketing as provocative and report that it far more frequently uses violence as an appeal than TV advertising does. Brown et al. (2010) analyzed comedic violence in particular, and tried to understand its impact on the effectiveness of viral marketing. More specifically, the dependent variables were: ad message involvement, brand memorability, likelihood of being passed on to third parties and attitude formation. In their study they exposed the respondents to video advertisements with content varying from high- to low-intensity violence and severe and moderate consequences. They

found that humorous ads that combine higher levels of violence intensity with more severe consequences elicit greater involvement with the ad message, better retention of brand information, higher pass-along probability and greater ad likability (Brown et al. 2010). A counter-intuitive finding was that brand attitude remained unaffected. Indeed many companies have used comedic violence successfully in their viral advertising (Ford SportKa¹, Quicksilver Dynamite Surfing² etc.). Brown et al (2010) do however stress that such tactics should be used for certain brands only, especially when it comes to high-intensity severe consequence type of comedic violence.

Dobele, Toleman and Beverland (2005) assert that viral marketing is not a random ground-up phenomenon over which marketers have little or no control. Instead, they claim that content of a viral message needs to capture the imagination by being fun or intriguing (Dobele et al.2005). According to them, the content of viral campaigns needs to be such that consumers perceive value in the transmission without feeling as though they are being used in the process.

The summary of types of marketing communications content that create the viral effect are presented in the table below:

Author(s)	Content that contains/is:
Dobele et al.2005	<ul style="list-style-type: none"> • Entertaining content • Intriguing content
Dobele et al.2007	<ul style="list-style-type: none"> • Surprise • Joy • Sadness • Anger • Fear • Disgust
Brown et al. 2010	<ul style="list-style-type: none"> • Comedic violence (with severe and non-severe consequences)
Berger and Milkman, 2011	<ul style="list-style-type: none"> • Highly physiologically activating • Positive valence (or highly activating)

¹ <http://www.youtube.com/watch?v=gLdcGSRHaaY>

² <http://www.youtube.com/watch?v=6xfBNxNds0Q>

	negative) <ul style="list-style-type: none"> • Practically useful, interesting and surprising content
Eckler and Bolls, 2011	<ul style="list-style-type: none"> • Positive valence

Table 3 – Content that creates the viral effect

2.2.1.1 Physiological Activation and Advertising Effectiveness

Before moving on to the second driver, psychological motivations/predispositions, a bit more needs to be said about the effects of activation. Physiological activation or arousal in advertising contexts has been studied numerous times before. Some of the most prominent works include those of Singh and Churchill (1987), Cacioppo and Petty (1985), Sanbonmatsu and Kardes (1988), and Berger (2011). Physiological arousal can be defined as the level of alertness or activation on a continuum ranging from extreme drowsiness to extreme wakefulness (Duffy, 1962). It is an inner tension, activation, energization or alertness (Berlyne, 1978) manifested as an elevated state of bodily function (Eysenck, 1976). Physiological arousal has been found to disruptively affect information processing (Berlyne, 1960; Zajonc, 1965) and to result in increased attentional selectivity (Easterbrook, 1959). Only in recent years have the researchers attempted to make a connection between physiological arousal and subsequent intention to share information within one’s social network (Berger, 2011; Berger & Milkman, 2011).

Physiological activation or arousal usually manifests itself through, among others, changes in systolic blood pressure, changes in heart rate, pupil dilation, facial muscles expression and electroencephalographic (EEG) activity (Cacioppo & Petty, 1985). In practice it is hard to use any of these indicators because reading values of any of these is rather intrusive and requires the respondent to be closely observed using various equipment, such as heart rate monitors or blood pressure pumps, all of which might affect respondent’s behavior and physiological activation levels. For instance when it comes to analyzing physiological arousal by measuring heart rate, one has to keep in mind that the heart rate changes/adapts itself

rather quickly to the exogenous stimuli and is thus not a straightforward arousal indicator (Zillmann, 1971). When it comes to pupil dilation, its arousal indication capacities are diluted since it also reflects mental effort, processing load and anxiety levels (Eysenck, 1976).

Furthermore, a consumer's state of physiological arousal varies frequently and considerably and is influenced by a variety of everyday events, including the presence of others, physical exertion, various task demands, incentives, performance feedback, alcohol or caffeine consumption, and exposure to emotionally-charged stimuli (e.g., fear-arousing ads, erotic ads, political or religious messages) (Sanbonmatsu & Kardes, 1988). This is why these measures are not to be taken as absolutely correct indicators of one's physiological arousal. Their accuracy naturally increases if one uses all of these measures together and creates an activation index.

As an alternative to equipment-measured arousal, respondents can be asked to report their physiological arousal levels themselves. Cacioppo, Stonebraker and Petty (1987) compare and contrast the effectiveness of using cardiovascular versus self-reporting measures of physiological arousal and find that when it comes to self-reported measures, the respondents are frequently unable to give correct estimation of their arousal levels. Additionally, the problem of misattribution occurs, whereby respondents wrongly identify the source of the residual arousal, in the case of their research, a physical exercise (Cacioppo, Stonebraker and Petty, 1987).

Nevertheless, self-reporting measures of physiological arousal have been used, for example by Cacioppo et al. 1987, Zillmann (1978), Cantor, Zillmann and Bryant (1975), Berger (2011) etc. Some of these measures include:

- asking respondents to assess their post-exercise residual arousal on a scale of 0-100, whereby 0 is the state they were before the exercise began (Cacioppo et al.1987)
- asking respondents to rate how they feel after an exercise or content exposure on three seven-point scales anchored at very passive/very active, mellow/fired up, very low energy/very high energy (Berger & Milkman, 2011).

Even though the measures used are imperfect, researchers have used them in analyzing effects of physiological arousal on learning, brand attitudes, recognition and recall, social sharing etc. The ideal way to do it would be to measure both by using equipment (for all the indicators) in addition to having respondents report themselves and then making an index based on these. This however is logistically challenging and therefore choosing just one way to measure suffices.

Another noted study of the effects of arousal on advertising effectiveness is that of Singh & Churchill (1987). They studied how television programming induced physiological arousal affects the learning, attitudes and behavior towards the commercials embedded in it. Based on an extant literature review on arousal they contend that its effects are significant. Beyond just the momentary state of high physiological arousal, the authors point to the effects of residual arousal, the duration of which is dependent upon the intensity of the source of arousal. In simple terms, the commercials embedded in television programming will most definitely be affected by the content of that particular programming in terms of learning, recognition, recall etc. A commercial appearing in a program inducing high arousal will generate greater recognition and recall than if the same commercial appeared in a program generating less arousal (Singh & Churchill, 1987).

The authors further posit that the attitudinal and behavioral effects of arousal may or may not be affected by programming-induced arousal, depending on where they are in the pod. They rest this assertion on the excitation transfer paradigm (Cantor & Zillmann, 1973), according to which the residual arousal effects *come into effect* once the awareness of arousal source has disappeared. With this, misattribution occurs and the currently felt arousal is associated with the currently perceived stimuli. In terms of commercials embedded in physiologically arousing television programming this means that commercials placed later in the pod will benefit more, due to the effects of residual arousal. Singh and Churchill however elaborate that the duration of arousal awareness is highly individual. In the case of television programming induced arousal it is arguably short because viewers of regular television programs should not remain conscious of their residual arousal for relatively long periods of time. To support this claim, the authors cite Christie (1974) in saying that regular television viewing seems to produce a habituation effect among viewers which desensitizes

them regarding their awareness of residual arousal from the programming. These assumptions are highly important for this piece of research as well, as the experiment design partially rests on the *excitation transfer paradigm* (Cantor & Zillmann, 1973) – more on this in the method section.

Sanbonmatsu and Kardes (1988) examined the effects of physiological arousal on information processing and persuasion. The authors posit that heightened arousal states reduce the amount of processing capacity available for performing cognitive tasks, and consequently, performance of these tasks is disrupted (Sanbonmatsu & Kardes, 1988). They cite Hasher and Zacks (1979) in saying that tasks that are ‘automatic’, that is, tasks that require little or no processing capacity are not disrupted by high arousal levels. Whether social sharing in online environments is an ‘automated’ action or rather a conscious one has not yet been researched, to the best of my knowledge. Arguably, with the increasing amount of time and types of social interactions being transferred to digital platforms, the act of social sharing will become more and more automated. At the same time, this is arguably also dependent upon how elaborate the content that is transferred is. In simple terms, the more complex the content is the more cognitive processing will it require, which in turn means that physiological activation will affect the probability of subsequent sharing. This research in particular will not deal with the ‘threshold’ content passes from being automatically processed to evoking actual cognitive processing – nevertheless, it is an interesting topic and one which should further be researched.

The first academic research attempt to link levels of physiological arousal with social sharing was that of Berger, in 2011. Prior associations between the two concepts were narrowed down to the *3 Cs*, the causes of rumor sharing – according to this, people increasingly share socially in times of generalized anxiety (i.e. apprehension about negative outcomes) such as in times of conflict, crisis and catastrophe (Koenig, 1985).

Berger used physical exercising in achieving high physiological arousal levels in respondents, an approach used successfully by many others before (Cacioppo & Petty, 1985; Sanbonmatsu & Kardes, 1988 etc.). Unlike with these researchers, the dependent variable in Berger’s experiment was the intent to share. The respondents expressed how willing they

would be to share about articles and videos shown, with friends, family members, and co-workers, using a scale ranging from 1 (not at all) to 7 (extremely). He found a strong link between high levels of physiological arousal and social sharing. These findings however were derived from a laboratory setting which questions their validity in the real-life context. A subsequent research, conducted by Berger and Milkman (2011), which I have presented earlier in this paper, verified the findings of Berger (2011) alone.

Based on all data presented it is safe to conclude that if we consume content in the state of high physiological arousal, it is likely we will share about it within our social networks. In most researches presented above, physiological arousal was achieved through exogenous means i.e. the content itself was not the source of arousal but rather became more likely to be shared due to residual arousal, caused by other means (i.e. excitation transfer paradigm). In most cases it was by means of physical exercises or exposure to erotic material. The exception is the study of Berger and Milkman (2011) who conducted a field study in which they assumed the arousal was caused by the content alone. They verified this assertion through subsequent robustness checks in the form of lab experiments. The content in their study however were newspaper articles, the consumption of which is rather lengthy in duration as compared to the consumption of an advertising piece e.g. a video or especially an image. This research will try to find the same association between high activation and sharing, with advertising materials used as the object of sharing as well as *the source* of increased activation rather than relying on previously achieved physiological states. The key instrument which will be used to achieve this will be the level of chroma (saturation) in colors of advertisements, images and videos, used in the experiments. The attributes of colors related to induced physiological activation are described in the following section.

2.2.1.2 Physiologically Activating versus De-Activating Content

There are many ways one can get physiologically activated while consuming content such as marketing materials or news broadcasts. For instance, reading a newspaper article about a train derailment would probably be upsetting to the reader. How physiologically activated she would get in this case is subjective and dependent on many variables such as: did she have a stake in this event, how strong her feeling of empathy are etc. An outcome could be

the feeling of sadness, an emotion of low physiological activation, or outrage or shock, very physiologically strong reactions (the next section will outline different emotional tonalities and levels of physiological arousal they are associated with).

Beyond the meaning of the content being the catalyst in affecting consumers' physiological activation, it can be done through some more tactile aspects of it such as colors and sounds. Gorn, Chattopadhyay, Yi and Dahl (1997) exposed two groups of respondents to an image advertisement with color being the primary executional cue. The images shown were identical except for the level of chroma/saturation in them. They found that respondents exposed to a de-saturated image reported lower physiological activation ($M=2.00$) than those exposed to a saturated image ($M=2.47$). The shortcoming of this experiment however was that the chroma values were *pushed* quite far – this resulted in solid academic reasoning, however arguably we could hardly see advertising as de-saturated as that which they used in the experiment (level 2 of the Munsell color specifier system). Highly saturated advertising however is quite common as high saturation in color has been linked not only with increased activation (which then leads to better recall and recognition) but also with greater likability (Gorn et al.1997).

Berger and Milkman (2011) analyzed the effects of words on physiological activation. They found that emotionally charged words as opposed to emotionally neutral words elicit a greater physiological response in readers. The way they tested this was through presenting the same story, written in two versions (a 'journalist' type, neutral and unemotional and a more dramatized one with 'stronger' words) to respondents and recording their subsequent activation. Arguably this finding is hardly applicable for most advertising materials as the copy in it is rather short. The content which Berger and Milkman used were newspaper-article-like stories, the consumption of which last longer than consumption of an advertisement (with exception of video advertisement, however even those rarely exceed 30 seconds, while reading a newspaper article usually lasts longer).

Dillman-Carpentier and Potter (2007) took the same approach as in previous two papers, however focused on music as an instrument for affecting physiological activation. As intuition would suggest, they found that music elicits greater feelings of excitement than

silence. Moreover, fast paced music elicits greater excitement than slow paced music. A definition of what slow or fast paced is music does not exist on a general level. However, it is safe to say that if the BPM (beats-per-minute) ratio exceeds 120, we can categorize it as fast music. Conversely, slow music usually finds itself around the 75 BPM mark. The values Dillman-Carpentier and Potter used in their experiment were 75 for slow and 135 for fast paced music. It is important to note that this is not genre specific as in most genres we can find examples of both, slow and fast tempos.

Other tactical methods of increasing consumers physiological reactions include the number of edits/cuts in videos and sound production effects in radio transmissions. A high number of edits/cuts in a video piece will elicit greater feelings of excitement in viewers (Lang, Bolls, Potter and Kawahara, 1999; Lang, Zhou, Schwartz, Bolls, & Potter, 2000). Similarly, increasing the frequency of structural features in radio content creates the same effect (Potter & Callison, 2000; Potter & Choi, 2006; Potter et al., 2002).

The outline of these tactics is laid out in the table below:

	De-activating	Activating
Color	Low chroma	High chroma
Text	Emotionally neutral words	Emotionally charged words
Music	Low tempo (~75bpm)	High tempo (~135bpm) *
No.of edits/cuts in videos	Slow pace	Fast pace
Sound production effects	No effects	Accelerated speech + effects

Table 4 - Effects of ad elements on physiological activation in ad consumers

2.2.1.3 Emotions and Physiological Activation

According to Schachter and Singer (1962), an emotion is a function of the interaction between physiological arousal and cognition about the arousing situation. The magnitude of physiological arousal determines the intensity of arousal and the cognition about the arousal situation determines the type of emotion to be experienced. In order for an emotion to be experienced, both arousal and cognition are necessary preconditions. Furthermore, if arousal and cognition are multiplicative (i.e., if either is absent), an emotion cannot be experienced (Schachter & Singer, 1971).

The interaction between physiological arousal and valence of emotions is presented in the framework proposed by Russell and Carroll (1999).

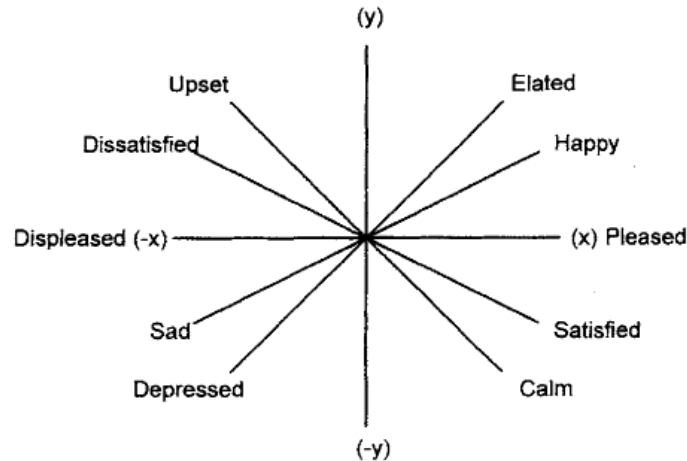


Figure 1 – Russell and Carroll’s semantic analysis of affect terms as composed of two components: x = pleasantness; y = activation

For instance, one cannot experience fear even if one was sufficiently aroused unless at the same time one perceives oneself to be in danger. In other words, a conscious connection between arousal and an emotional cognition has to be made to experience arousal, although the connection may be correct or incorrect (Singh & Churchill, 1987)

The emotionality of viral messages is important to be understood as it was found that particular emotions lead to greater virality than others – these findings have been presented in the preceding sections (Dobete et al.2007; Berger & Milkman, 2011). What is important to note, for this particular piece of research, is that the element of emotionality will be left out of the equation. The notion on which experiment design choices will rest are the findings of Berger and Milkman (2011) which show that the degree of physiological arousal is what *essentially* drives the sharing behavior, more so than particular emotionalities and even valence orientations of the viral content.

In practical terms, this means that virals used in pretest and later throughout the experiments will not be tested and subsequently categorized according to their emotionalities. These decisions will further be elaborated in the method section of this paper.

2.2.2 Internal Motivations for Sharing

In the previous sections various types of marketing message content that are likely to result in virality have been defined. Beyond the mere physiological cause and effect principles, marketing message content that becomes viral triggers certain 'higher' motivations in sharers as well. If sharers assume the role of a dissemination medium, then there must be a certain need they are trying to satisfy through the act of sharing.

When it comes to literature on motivations for WOM dissemination, one of the most prominent efforts was that of Sundaram et al. (1998). They have identified eight reasons for WOM dissemination, four for sharing positive and four for sharing negative WOM. These reasons are: altruism, product involvement, self-enhancement and helping the company (positive); and protective altruism, anxiety reduction, vengeance and advice seeking (negative). The researches presented in this section focus on motivations for sharing viral messages (eWOM) specifically. These studies show that motivations for sharing eWOM do not significantly differ from motivations to share traditional WOM.

Phelps et al. (2004) define these various internal motivations to be pro-social (to educate or to help) as opposed to pro-business (to acquire new customers). In their study of consumer responses and motivations to pass along e-mail, Phelps et al. (2004) asked focus group participants about all virals they receive (including non-commercial ones). They find that the most commonly forwarded types of e-mails, content-wise, are those that are about a good deed, those that contain nudity, jokes about gender issues and crime warnings, to name a few. The top five reasons (out of 28 in total from the Rubin et al.1988 scale) are: because it is fun, because I enjoy it, because it is entertaining, to help others and to have a good time. Four out of these five revolve around enjoyment and entertainment. Furthermore, respondents reported experiencing positive emotions when they sent pass-along e-mails (Phelps et al.2004).

Another interesting finding from this research was that there was an unwritten, yet clearly defined etiquette of sharing viral e-mails. For viral mavens (or eMavens, frequent senders) this meant forwarding e-mails regularly as part of a responsibility to receivers. Receivers (or infrequent senders) for the most part positively react to such e-mails, besides the occasional feeling of irritation due to clutter or too-edgy content. The positive feeling they associate to

being sent virals to, is the feeling of connectedness and excitement. In a way, frequent and infrequent senders create a social ritual around the practices of virals' sharing.

Phelps et al. (2004) conclude by saying that targeting the right people is essential to any viral effect. Finding people who are interested in what the company/organization has to say is easier if an internal list exists of consumers who have chosen to receive e-mail updates. In this sense, viral marketing has been compared with activating an affinity group where one is reaching people who are ready to hear one's message (Phelps et al.2004).

The restricting factor in the generalizability of these findings is the fact that this research was performed before the emergence of social media. While e-mail still remains an active and prominent tool for sharing content, social media is undoubtedly taking over. In addition to this, the research of Phelps et al. (2004) was predominantly about non-commercial viral messages. As noted earlier, non-commercial messages can afford to contain all kinds of risqué content, as there is no brand image to harm (apart from the 'brand image' of the e-maven who is disseminating the message). Furthermore, as Dobeles et al.(2005) note, when consumers share commercial virals there is always a chance they will feel used. This is why the motivations for sharing commercial virals and responses to them may be different.

A research that took into account the specific nature of commercial virals, while trying to uncover motivations for sharing is that of Hennig-Thurau et al. (2004). They attempted to create a similar typology as that of Sundaram et al. (1998) – a typology of consumer motivations to share WOM. In their analysis of consumer-opinion platforms they manage to cluster the sharers into four distinct, motive-based groups: self-interested helpers, multiple motive consumers, consumer advocates and true altruists. The 'self-interested helpers' was the largest segment (34%). Sharers of this type are motivated to share by an external factor, namely economic incentive. The second segment, 'multiple-motive consumers' (21%) were equally driven by following motives: concern for other consumers, helping the company and perceived social benefits. 'Consumer advocates' (17%) are primarily driven by the need to help other consumers. The final segment, 'true altruists' (27%) appeared to be both strongly motivated by helping other consumers as well as helping companies; all other motives were of less importance for this segment's members (Hennig-Thurau et al.2004).

As with previously presented research, this one's applicability is limited due to the emergence of social media which changed the way we consume World Wide Web information, which includes marketing messages pushed through it. Another limitation stems from the fact that this research focuses on a specific form of online sharing i.e. articulation in an online opinion-sharing platform thus ignoring other internet venues.

A more recent attempt to shed light on the issue is that of Ho and Dempsey (2011). They adopt the conceptual framework by Schutz (1966) which explains reasons to engage in interpersonal communication. Those reasons are: inclusion (need to be a part of group/need for attention), affection (show appreciation and concern for others), and control (need to exert power in one's social environment). In their study, they try to see if these reasons apply in the eWOM context. They do not limit themselves to examining the sharing practices using a particular platform (consumer-opinion platforms, e-mail etc.) – instead, they examine motivations to share using all internet platforms.

The findings show that inclusion and affection are positively related to the intent to forward. When it comes to inclusion, specifically, the more prominent need which drives sharing is the need for attention. In practical terms this refers to using the internet for the purpose of public individuation and demonstration of uniqueness. The other part of inclusion (need to be a part of group) did not show significant correlation with the intent to forward online content. This is in line with the findings of Phelps et al. (2004) regarding the way infrequent senders perceive the frequent senders: as outgoing, jovial and giving.

When it comes to the second reason for interpersonal communication, affection, this study found a positive relationship. This supports the previously presented findings of Hennig-Thurau et al. (2004).

Another interesting perspective to analyze internal motivations for eWOM's transmission is the study of Camarero and San Jose (2011). Firstly, they define viral dynamics as the process of receiving-opening-forwarding viral messages. Secondly, they examine the effects of social capital of parties involved on the viral dynamics. More specifically, they analyze how the number of connections between individuals of a social group (structural dimension of social

capital) and the willingness of people to act together (relational dimension of social capital) affect the viral dynamics.

Their findings show that the structural dimension of social capital has a weak impact on viral dynamics. It is the degree of interaction within a social group (relational dimension) that is directly linked to forwarding of virals. Large networks increase the flow of information whereas the degree of individual integration in the network increases the communication and exchange of information (Camarero & San Jose, 2011).

One more research effort dealt with the issue of motivation for sharing marketing content, however using a different approach in data collection and analysis. Cheung et al. (2007) conducted in-depth interviews with 16 consumers which were later analyzed following the practices of grounded theory approach (Glaser and Strauss, 1967). Their findings are along the lines of the ones previously presented. Namely, they posit that the main internal motivations for sharing content are: strength of social ties, altruism, expressing sense of achievement and seeking therapeutic effect. The respondents they have interviewed were consumers from USA and China, and those were the motivations they had in common. Those that manifested only with Chinese consumers, in addition to ones listed above, were: seeking confirmation of one's own judgment, seeking advice and seeking retaliation. The ones that were specific to USA consumers were: seeking correction/compensation and seeking bargaining power.

The summary of internal motivations for sharing virals is presented in the table below:

Author(s)	Motive
Phelps et al.2004	<ul style="list-style-type: none"> • enjoyment • entertainment • helping • communicating caring
Hennig-Thurau et al.2004	<ul style="list-style-type: none"> • concern for other consumers • advice seeking • helping the company • social benefits
Ho and Dempsey, 2010	<ul style="list-style-type: none"> • need for attention <ul style="list-style-type: none"> ○ public individuation ○ demonstration of uniqueness

	<ul style="list-style-type: none"> • affection <ul style="list-style-type: none"> ○ showing appreciation for others ○ showing concern for others
Camarero and San Jose, 2011	<ul style="list-style-type: none"> • social capital relational dimension: <ul style="list-style-type: none"> ○ integration in the network ○ relationship with the network • attitude towards sharing virals
Cheung et al.2007	<ul style="list-style-type: none"> • strength of social ties • altruism • expressing sense of achievement • seeking therapeutic effect

Table 5 – Internal motives for forwarding viral messages

2.2.3 Effects of Incentives on Virals' Consumption and Perception

Cruz and Fill (2008) argue that viral marketing concerns the free association and distribution of a marketing message. Once marketers get involved in the form of incentivizing sharers to act as intermediaries, this approach simply becomes another form of advertising. This occurrence is also known as *seeding*. In practice it usually means incentivizing bloggers to publish posts on a particular issue. In other instances it could mean giving product samples to a specific group of people and simply having them use the product and ideally communicate about it. Additionally, it also comes in the form of consumers becoming eligible to participate in a competition/lottery by communicating about a product/service/brand (e.g. *Share this on your timeline to win an iPhone*). According to Cruz and Fill (2008), this is something which has been avoided in the literature so far.

However, there are several research efforts aimed at understanding implications of incentivized sharing (Swanepoel et al.2009; Kozinets et al.2010). Swanepoel et al. (2009) refer to viral marketing that uses incentives to stimulate the spread of the message as viral stealth marketing. They define it as an electronic word-of-mouth communication that is spread in an exponential and contagious manner using the highly effective platform of the electronic medium...the people spreading these marketing messages are required not to disclose the fact that they are being paid to promote the product for the organization (Swanepoel et

al.2009). Their definition builds on that of Kaikati and Kaikati (2004) who consider incentivizing to be an integral part of viral marketing. Moreover, they define viral marketing as a type of six different stealth marketing techniques (besides celebrity marketing, marketing in video games, marketing in pop and rap music, brand pushers and bait-and-tease marketing) (Kaikati and Kaikati, 2004).

Hennig-Thurau et al.2004, in their study on motivations for sharing online messages, find that the greatest portion of sharers engage in viral messages' dissemination because of a particular economic incentive ('self-interested helpers' - 34% of sharers). And these incentives come in the forms of monetary/material compensations, lottery alike game participation, public recognition etc.

Kozinets, De Valck, Wojnicki and Wilner (2010) corroborate this by analyzing how incentivizing virality by *seeding* a product, in this case with bloggers, affects the information sharing behavior. Seeding refers to a campaign in which the product is placed among influential consumers so that they can communicate favorably about it to other consumers (see Balter 2005). The targeted bloggers, 83 of them, were given free, brand new cell phones and were stimulated however not required to communicate about this product in their blogs. Eighty-four percent of the bloggers communicated about the product in 220 postings yielding approximately 700 related comments. Through this study, Kozinets et al. (2010) have indeed shown that incentivizing works, however the effectiveness of this promotional method is questionable, because the numbers of product postings and comments do not suffice as a success measure. Blog posts are not necessarily objective product reviews, but sometimes tend to be very subjective views, in this case of products and brands. In addition to this, part of blogs' appeal lies in their non-commercial character – bloggers becoming marketing media interferes with this and raises issues of credibility, discussed in the following section.

2.2.4 Influentials

According to Bughin, Doogan and Vetvik (2010), 8-10 % of internet users could be considered influentials, individuals who are three times as likely to share content. In practical terms these could be bloggers, public figures, or simply individuals within social groups who

maintain high levels of social capital and are thus perceived to be influential by their peers. The prior two are naturally easier to identify and employ for marketing communications purposes than the latter.

For certain industries, identifying and employing influential individuals within social networks is essential. The diffusion of new prescription drugs has traditionally heavily relied on doctors' adoption thereof. This is why the diffusion of innovation within medical communities has been studied numerous times (see Coleman et al.1957; Van de Bulte & Lilien, 2001). In most other cases marketers can influence the diffusion through marketing communication efforts – this however, does not make WOM strategies redundant as the power of influentials has been proven many times over (see Bughin et al.2010; Arndt, 1967 etc.). Understanding who the influentials are and how best to engage them is, however, a difficult task.

Katona, Zubcsek and Sarvary (2011) analyze the diffusion of an online social network over the period of 3,5 years and try to identify WOM effects on the individual level. Their findings show that the number of already adopted friends has a positive effect on the probability of an individual's adoption (Katona et al.2011). Additionally, they find that the interconnectedness of an individual's already adopted friends has a positive effect on his or her adoption probability. These findings are along the lines of those of Camarero and San Jose (2011) who have also studied network effects on diffusion of an innovation. In practical terms, this means that dynamic social networks with a lot of interconnectedness (e.g. specialty forums, fan pages etc.) may prove useful for marketers to initiate the diffusion from. Furthermore, Katona et al.2011, find that network users with many connections have lower average influential power than those with fewer connections. Similarly, influencers who occupy structural holes in the network have, on average, greater influential power. The authors find that it also depends on the type of product offering we are attempting to initiate WOM on. For low-involvement products, for which low average influential power suffices, users with highest number of connections are the best target – them relaying the information on the innovation is enough and the credibility of the source plays a smaller role. Conversely, when it comes to high-involvement products/services, marketers may be better off targeting individuals with fewer connections.

In practice, applying these findings may be close to impossible. Katona et al.2011 in their research had access to more information of a social network than any company attempting to initiate WOM on it could. In reality, the type of online influencers marketers may most easily approach would be bloggers. In the previously presented research on innovation diffusion through bloggers (Kozinets et al.2010), the authors show how seeding products with this type of influentials results in publicity. This publicity comes rather cheaply as all that had to be done was to send sample products to these few individuals who then, through their product related posts, reach large audience. This method however may prove to be a double-edged sword as, one of the research findings show that, bloggers becoming a marketing medium raises issues of credibility in the eyes of blog readers. The bloggers themselves assumed different approaches in this situation ranging from full disclosure about to concealment of marketers' involvement. Either way, the blog readers' reaction was for the most part negative, in so that they perceived blogger-marketer relationship as *selling-out*.

In the previously presented research of Phelps et al.2004, the authors also brush upon the relationship that influentials and viral message receivers form. Namely, a form of symbiosis is created whereby the act of sending a viral message is part of a social ritual, resulting in feelings of connectedness and excitement in both parties. The positive traits associated with frequent senders include generosity, gregariousness, intelligence and outgoing personality. The negative ones include insecurity, business which prevents one from having *real* contact with friends etc. Once again, even though interesting findings, they hardly provide much insight for managers attempting to leverage the power of these individuals.

The research of Watts and Dodds (2007), which occurred three years later, focuses on the role of influentials specifically and tries to broaden our understanding of their role in the diffusion process. They build on the generally accepted 'two-step' flow model of communication, established by Katz & Lazarsfeld (1955). Through series of computer simulations and mathematical models of interpersonal influence they find that the role of influentials in the literature thus far had been exaggerated. Watts and Dodds (2007) argue that message receivers play a more important role than the small number of individuals who can be considered as influential. According to them, it is social groups, the members of which are easily influenced that will result in the diffusion of innovation. Influentials, according to the authors, are important in so that they are diffusion media, perpetuating the

diffusion to at least four others network members (Coleman et al.1957). The *sine qua non* factor in the diffusion process however is the susceptibility to influence of the majority, the non-influentials.

2.3 Framework

This research builds on the findings of Berger and Milkman (2011) and Gorn et al. (1997) which have been presented in detail in the preceding sections. In simplified terms, Gorn et al. (1997) establish a causation between level of chroma in color and resulting physiological activation in its viewer while Berger and Milkman (2011) demonstrate that more physiologically activated individuals are more likely to share. These findings will be applied with marketing communications content as both the source of activation and object of social sharing, and built on through the following hypotheses:

EXPERIMENT	Hypothesis
Experiment 1	H1a: psychological motivation is a greater driver of online marketing communications content sharing behavior
	H1b: physiological activation is a greater driver of online marketing communications content sharing behavior
Experiment 2	H2: High physiological activation results in increased sharing of online marketing communications content
	H3: Highly saturated (with high level of chroma) colors in advertising images result in greater sharing of online marketing communications content
Experiment 3	H4: Highly saturated (with high level of chroma) colors in advertising videos results in greater physiological activation in viewers
	H5: Highly saturated (with high level of chroma) colors in advertising videos result in greater sharing of online marketing communications content

Table 6 – Research objectives

3 METHODOLOGY

3.1 Experimental Social Research

The sole purpose of experimental research is to study causal links: to assess whether a given factor X has an impact on another Y, or whether changes in one variable produce changes in another (Hakim, 1987). Experimental social research is relatively narrow, or focused, in the type of information it produces, but it can provide more definitive answers to questions about causal links than do other types of study, and is hence essential for the development of soundly based explanations of social events, behavior and attitudes (Hakim, 1987).

The element of control is thus of high importance for this type of research. A controlled experiment is a simplified working model of reality. It is designed as an attempt to fix most factors in place, to control them, while allowing just a few to vary (Gomm, 2004). Another important element in social experimental design is randomization – allocating the people or other units being studied to the experimental group (which is exposed to the information, experience or event being tested), or to a control group (which is not exposed to the same experience, or is given a ‘placebo’ treatment instead) on an entirely random basis, taking no account of their characteristics or preferences (Hakim, 1987). The logic of random allocation to the experimental and control groups is that the two groups thus formed will be exactly similar in all aspects relevant to the experimental treatment (Hakim, 1987).

Generalization of the findings of experimental social research goes as far as the same mechanism has an effect in a large number of different circumstances, but the effects may be different according to the context (Gomm, 2004). The contextual factors of this particular research will be elaborated in detail in the method section.

Particular method used in this research is lab experimentation. Laboratory experiments allow complete control by the researcher and hence achieve the ‘model’ random allocation to treatment and control groups and the well-defined treatment that are the aims of the true experiment (Hakim, 1987). Two of the three experiments will be done *traditionally* as in, respondents will be exposed to stimuli after which they will record their responses on the

sheet of paper in front of them. One of the three experiments will be a variation on this in so that respondents will participate in the experiment using a computer, thus being able to fully control the pace at which they go through the experiment which is more desirable. The reason why the other two experiments will not be done the same way is because some of the stimuli for those two will include video material. It is thus logistically easier to have all respondents watch these on the big screen instead of having to procure headphones for each respondent.

Another important consideration and a challenge to validity when it comes to lab experiments is their 'artificial' character. Tajfel (1984, p.474) described laboratory experiments as a temporary collection of late adolescent strangers given a puzzle to solve under bizarre conditions in a limited time during their first meeting while being peered at from behind a mirror. While this is in many cases true, lab experiments remain a useful tool, exactly because of the high degree of control the researcher is afforded. The 'artificial' finding of the laboratory experiment can be generalizable, depending on how well experimental procedure is designed. Hakim (1987) for instance, suggests including adult groups and premises other than universities, for the purpose of increasing validity of such experiments.

Validity of laboratory experiments can be increased by replicating them in real-life settings. Real-life experiments however do not afford the degree of control a researcher gets in laboratory experiments. The direct causality is harder to understand due to a wide variety of factors which may interfere i.e. extraneous factors. Nevertheless, the interfering factors are what make these experiments real, because in real-life settings they inevitably become part of the 'experimental design'. Thus replicating a lab experiment in a real-life setting, puts to the test the strength of the causality identified in the lab setting. Some suggestions as to how the experiments conducted within this research could be replicated in the field setting are identified at the end of this paper.

4 METHOD

4.1 Data Collection and Analysis

Data was collected through a series of three lab experiments. The subjects were college level students who were awarded course points for participating in this research. Data collected was afterwards analyzed by using IBM SPSS Statistics 20 software application, and specifically, by running analyses such as correlation, regression and ANCOVA. These analyses were appropriate as the intent was to determine whether there is causation between variables that were observed. Correlation shows if two variables change together while regression shows if the change in one variable is responsible for the change in another. Essentially, this is what this research came down to and the variables in question were presented earlier in the *Framework* section. In addition to these analyses, ANCOVA was used in instances when I needed to control for a third, unhomogenized variable, which in this case was the physiological state respondents were in before the experiment began.

The value of the findings established through these analyses and the method of experimentation in general, depends on the degree of control applied in the setting. Extraneous variables such as distractions during the experiments' execution or states respondents were in before the experiments could drift the findings askew. That is why a variety of controls were considered such as having the same air quality and lighting for all experimental groups.

4.1.1 Experiment 1

The first experiment was aimed at understanding whether physiological activation or psychological motivation prevails in one's decision making process of whether to perpetuate a viral piece or not. To test this, two groups of respondents, college level students (N1=34, N2=33) were exposed to a series of four viral pieces. The first three in the pod were varied between the groups, ones being highly physiologically activating pieces, while others being physiologically de-activating. The fourth viral was the same for both groups. The idea behind

this design was to measure the intent-to-share of the fourth viral, between the groups that were primed to the opposite ends of the activation scale. The experiment 1, part 1 is laid out in the table below

Group 1 (N=34) priming: high activation	Group 2 (N=33) priming: de-activation
Viral 1: Quicksilver dynamite surfing	Viral 1: Eucerin
Viral 2: Utopolis reality sucks	Viral 2: Rawi Warin resort & spa
Viral 3: Bungee jump prank	Viral 3: Soleil spa
Viral 4: Pedigree doggie dentures	

Table 7 - Experiment 1 design layout (the hyperlinks to these videos/images can be found in the appendices)

The dependent variable was intent-to-share (Chiu et al.2007) which are two, 7-point agreement scales for the following two statements:

1. This ad is worth sharing with others
2. I would recommend this ad to others

The first statement applies to situation where the respondent perceived the viral quality in the piece, however would not necessarily share it herself. The second one applies to a situation whereby she perceives the viral qualities of the piece and states that she intends to share about it personally. The Cronbach alpha for this measurement is 0.894.

Each of the four viral pieces from the pod was followed by this measurement. The reason for that was so as to create consistency in the study and to familiarize the respondents with the scales before marking down their answers for the fourth piece, from which the data was actually used in the analysis. Another question which was added after each viral piece was whether they have seen this viral image/video before. The reason for this was to control for recognition/recall of these pieces and see if it makes any difference in the results, which, as it later turned out, it did not.

Some *technical* aspects were considered such as lighting, air temperature and quality as these can affect physiological activation of persons exposed to them. Namely, the rooms in which the experiment was executed were ventilated right before the experiment, the temperature setting was the same as well as the light level, which was slightly dimmed lights. These considerations were taken over from Gorn et al.1997, from a similar experiment they executed.

The videos and images which were used in this study were pre-tested for the activation levels they evoke. In the pre-test 25 respondents were asked to report their activation level after viewing each of the 14 images/videos they were shown. The 14 videos and images were randomly chosen (the full list and the hyperlinks in *Appendices*). After the pre-test, the 14 shown videos/images were organized according to activation they evoked in respondents. The bottom three were used for priming the group 2 (de-activated), the top 3 were used for priming the group 1 (activated), while the one which found itself most in the middle was used as the fourth piece in the study, the one which was shown to both groups (Pedigree Doggie Dentures advertisement).

The measurement used in the pre-test was Berger & Milkman's (2011) self-report measure of physiological activation (mentioned earlier in the *Physiological Activation and Advertising Effectiveness* section). The question asked is *How do you feel right now?* and respondents can mark down their answers in three, 7-point scales, anchored at: very passive/very active, very mellow/very fired up, very low energy/very high energy. An activation index was then created according to which these videos and images were ranked. The Cronbach alpha for this measurement is 0.97.

For the purpose of avoiding or lessening the possible effect of residual arousal, respondents were asked to elaborate their answers after each activation ranking they gave. It was mandatory they answer to this question and it was an open ended one. This took some of their time and hopefully allowed the activation level evoked by the just seen video/image, to reset back to the natural state before seeing the next one. Naturally, this information was not used in the analysis.

In order to understand whether certain psychological predispositions (described earlier in the *Internal Motivations for Sharing* section) are greater drivers of sharing behavior than physiological states respondents were primed to, I measured these predispositions as part of an 'unrelated' study. The answers were then matched with their answers from the video/image viewing study, described above.

The psychological predispositions in question are the *need for attention/public individuation* (Maslach et al.1985), *altruism* (Price et al.1995). These are the predispositions Ho & Dempsey (2011) identified as the psychological drivers of sharing behavior. Other researchers' findings on psychological drivers of social sharing are along the same lines and this is why Ho & Dempsey's findings are being built on in this research. (more on this in the *Internal Motivations for Sharing* section above). The individuation measure is 12-item, 5-point while the altruism measure is 5-item, 7-point scale and both can be found in the appendices of this document.

4.1.1.1 Results

The way to see which of the two drivers is a stronger one in the case of this experiment is to compare the intent-to-share between people from different groups (activated/de-activated) but with the same level of measured psychological predisposition (individuation and altruism). In other words, of the people who scored for example, number 5 on the individuation scale, which ones shared more: the ones in the de-activated group or the ones in the activated group?

Once the data was collected, the first step was to establish the correlations between these psychological predispositions and the intent to share, as well as between group allocation (activation) and the intent to share. These links are not part of the hypotheses and they were established prior to the current studies. Nevertheless, it was necessary to do these analyses before proceeding to check the hypotheses in order to see if the set up itself worked well. Below is an overview of correlations between psychological predisposition and intent to share.

	Correlation Coefficient	Level of Significance
Individuation (Maslach et al.1985)	-0,042	0,763
Altruism (Price et al.1995)	0,231	0,096

Table 8 – Correlations between psychological predispositions and the intent to share

Perhaps the artificialness of both measures, combined with a small sample is to be accounted for the weak correlations and large p values. Altruism has somewhat acceptable values and if I run regression analysis for it, I get beta coefficient of 0,231 ($R^2=0,053$ adjusted $R^2=0,035$; $F=2,877$, $p=0,096$).

To check the possible correlation between activation (i.e. group allocation in this experiment) and subsequent sharing behavior I get beta coefficient of 0,227 ($R^2=0,051$ adjusted $R^2=0,037$; $F=3,526$, $p=0,065$). Essentially, the correlations between altruism/activation and subsequent sharing are weak, even though statistically acceptable. The coefficients attained have no applicability in either the theoretical or managerial domains. Therefore, I found it unnecessary to further analyze the data obtained in this experiment and see which of the drivers was stronger. It seems that a different approach needs to be undertaken when involving psychological motives for sharing as a variable. Perhaps that is something which requires a field setting. In the following experiments I thus decided to focus solely on activation as a driver of social sharing.

4.1.2 Experiment 2

The second experiment focused on the aspect of physiological activation alone, in particular on the effect of color as an instrument of varying one's physiological activation and indirectly subsequent sharing behavior. The specifics of how color affects one's activation were elaborated in the *Physiologically Activating versus De-Activating Content* section above. In brief, the more saturated the color is i.e. the higher the level of chroma in it is, the more it will increase physiological activation in the viewer (Gorn et al.1997). The experiment design was rather similar to that of experiment 1. Namely, two groups of respondents, again college level students, were shown a series of four ads whereby this time the last in the pod differed between the groups, this time in the level of chroma in it. The experiment 2 design is laid out in table 9.

Group 1 (N=15)	Group 2 (N=18)
	Image 1
	Image 2
	Image 3
Image 4 (saturated)	Image 4 (de-saturated)

Table 9 – Experiment 2 layout (the actual images can be found in the appendices)

Gorn et al.(1997) manipulated the colors' saturation/chroma level using the Munsell system and setting the de-saturated image at level 2 and the saturated one at level 8. I have used the Microsoft Office 2010 application where the scale is different, however the effect the same. The scale is set at 0 with imported images and it reaches a value of 100 in either the negative (de-saturated) or positive (saturated) direction. The de-saturated version I used was set at -50 while the saturated one was at +100. The guideline here was to manipulate the level of chroma to the extremes while keeping in mind that these stimuli are in fact advertising materials and must be manipulated to the point that they still look as such. For instance, decreasing the saturation anywhere below -50 would make the image appear too dull and lifeless and as such would never be used as an advertising material. On the saturated side, it was pushed to the maximum which was acceptable this time as the image contained only one color, color blue. If there had been more colors in it, a high saturation may have made the image to appear too intense and even psychedelic.

The imagery used in the experiment was taken from Kraft Food's Oreo Cookie Facebook brand community. The visuals of this community fit this experiment well as the four images chosen contained only the color blue (besides the blacks and whites, which are not colors anyway). The fourth image in particular is about 90% blue, which then made the two versions of it differ from one another significantly as saturation level does not affect the blacks and the whites but only colors. The three images preceding the manipulated one were mostly black and white and intentionally so. Blacks and whites are not colors and do not have the dimension of saturation which could affect respondents' activation prior to seeing the fourth image.

The measure that followed seeing each image was intent-to-share (Chiu et al.2007), as in the previous experiment. A measure that was added this time was the self-report measure of

physiological activation (Berger & Milkman, 2011), which was used earlier in the pre-test for experiment 1.

Same technical considerations such as lighting and air quality were applied this time. The only difference was that there was more light in the room as this time the respondents were in a computer room and went through the experiment individually as it was in the form of an online survey. An online survey is arguably a better way to conduct such an experiment as each respondent can afford to do it at their own pace, unlike when material/treatment is shown by using an overhead projector. When all respondents observe the images/videos together and then mark their answers then one has to wait for the last few before proceeding to the next image/video. For the respondents who were very quick to mark down their answers this means that the time gap that is created could serve as a distraction (they could start talking with someone sitting next to them, reach for their phone and simply drift away in their thoughts).

4.1.2.1 Results

The two hypotheses (H2 and H3) tested through this experiment were to see if physiological activation and/or color saturation increase social sharing of advertising material through the internet. As mentioned in the literature review, priorly a link had been found between activation and social sharing in general (Berger, 2011) and social sharing of newspapers articles (Berger & Milkman, 2011). This time the content was advertising material. This was tested by simply running a regression analysis with the reported activation levels of respondents and their expressed intent to share.

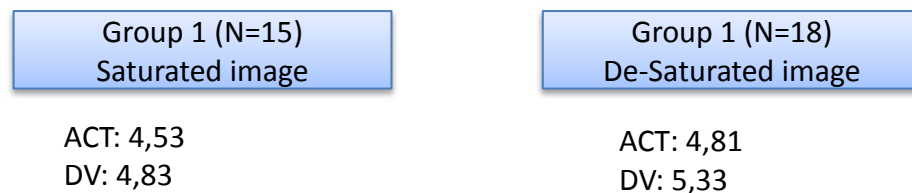


Figure 2 – Activation and intent to share means between the two groups

Regression analysis with activation as independent (ACT) and intent-to-share as dependent (DV) variables gives beta coefficient of 0,508 ($R^2=0,258$, adjusted $R^2=0,234$; $F=10,768$,

$p < 0,05$). With these numbers it is safe to assert that activation indeed conditions sharing behavior. In fact, for each increase in activation by 1 percent, sharing behavior increases 2,64 percent. Naturally, this ratio is not universally applicable but rather specific to this case. Its specificity is tied to all other extraneous variables which were not controlled for (listed in literature review section). Nevertheless, it is safe to accept this assertion because links between activation and social sharing have been found before, as mentioned earlier.

The next thing to test was whether saturation was potent enough to drive sharing, indirectly, through activation. Just by observing activation and intent-to-share means, presented above in figure 2 one can see that this is not the case. The group that was shown the saturated image was, in fact, more physiologically activated and thus shared more. This is actually a flaw in the experiment design. Physiological activation was measured at the end of the experiment, right after exposure to the fourth image (the one varied between the groups). I expected to record its effects by asking respondents to report their activation levels right afterwards. What I failed to foresee is that respondents may be in different levels of activation before the experiment begins. In fact, the group exposed to the saturated image participated in the experiment at 08.15 in the morning while the other group participated at around 10.30. Arguably, activation levels differ at these different times of day as many respondents may not have had their morning coffee, one of the most potent drivers of activation. Another reason could be the very dark mornings, typical to Finland around the time of year when the experiment was executed. With these things in mind, the design of experiment 3 was amended and included measuring activation at the beginning as well as at the end of the experiment. Another added precaution was to have the groups participate in the experiment at the same time of day.

4.1.3 Experiment 3

Experiment 3 was aimed at understanding the same questions as experiment 2, however this time using videos as priming material as opposed to imagery. Experiment 2 has shown that saturation levels of in image are not potent enough to affect one's physiological activation levels, nor the subsequent sharing behavior. Videos, however, are consumed for longer period of time than images and they engage auditory on top of visual perception. This could

make them more powerful as an instrument for affecting one's activation level and/or sharing behavior.

The longer the exposure to videos, the greater this effect could be according to the excitation transfer paradigm (Cantor et al.1975). If a person is aroused in situation A and then sometime later finds him/herself in an emotion-provoking situation B, the residual arousal, if any, from situation A might get transferred to and intensify the corresponding emotional response in situation B. In other words, the residual arousal from situation A — an unrelated event to situation B — combines with the arousal from situation B, and thus increases the intensity of the emotional response experienced in B (Singh & Churchill, 1987). What this means for experiment 3 is that whatever physiological arousal is evoked through initial videos in the pod, should sustain/transfer itself and amplify the arousal evoked by the latter videos. The entire pod consisted of 7 viral advertisements, lasting on average around 1 minute each. The excitation transfer paradigm was not tested through this research, but it was part of the design as I have just explained. The way to measure it would be to measure the activation after and sharing of the last video in the pod and compare it with the same values of another group that was *only* shown this particular video, without any prior priming material from which the activation could have been transferred. This occurrence had been found many times before (Cantor et al.1975, Donnerstein et al.1978, Zillmann et al.1974 to name a few). Nevertheless it was part of the design in the way that showing a series of videos which have been trialed and tested in the market and turned out to be successful viral videos, would result in respondents becoming more physiologically activated than they were before the experiment started. The difference would then be in *how much more* they were activated throughout the experiment, depending on whether they were in the group with saturated videos or not.

The design of the experiment was similar to the previous two. This time, two groups of respondents were exposed to a series of 7 videos, same ones for both groups, varying only in the level of color saturation in them. The measures included intent-to-share (Chiu et al.2007) and self-report measure of physiological activation (Berger & Milkman, 2011), the same as in previous experiments. This time, however, activation was measured at the beginning and at the end of the experiment. The previous experiment did not permit this to be done as its

duration was rather short (on average 6 minutes). Having the respondents answer the same question in such a short time difference would arguably lead them to give the same answers. In experiment 3, the videos themselves lasted about 7 minutes in total. This combined with the response time in between videos and the activation measures at the beginning and at the end resulted in the experiment lasting about 13 minutes which arguably allowed them to forget their earlier answers to the same measure and reassess their activation level anew.

The experiment 3 design is laid out in the table below

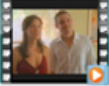
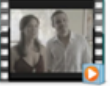

Group 1 (N=17) saturated videos		Group 2 (N=19) de-saturated videos
	1. Axe Bom Chika Wah Wah	
	2. Carlton Big Ad	
	3. Cadbury Gorilla	
	4. Ford Sport Ka	
	5. Skittles Touch the Rainbow	
	6. Skoda Fabia	
	7. Cheermageddon	

Table 10 – Experiment 3 layout

For the previous experiment, as mentioned earlier, I used a Microsoft Office 2010 graphics editing application when manipulating the levels of chroma in images. For the videos I referred to an application called Magix Video Pro X2. Again, this was not according to the Munsell color specifier system, which was used by Gorn et al.(1997) in their experiment. It is a different scale (in terms of values), nevertheless, color saturation or chroma means the same thing in all these applications. Once more, my guideline was pushing these values in both directions as far as I considered it would be permit them to still be used as authentic advertising materials. Completely saturating or completely de-saturating these materials would for sure result in more dramatic findings, however they would only be academically

relevant. The saturation levels in this application are manipulated through three separate dimensions: *shadow*, *mid* and *lights*. Each has its own scale, ranging from 0 to 255. Material loaded in the program goes to value 128 on each of the three scales, by default. For the purpose of consistency, for the de-saturated versions I have reduced saturation on all three scales for all videos to value 55. For the saturated versions I pushed the saturation level (again on all three scales and for all videos), to value 200. This way, the manipulated versions of the content were the same distance from extreme values.

A shortcoming with this approach is that this material comes with differing levels of saturation already. This means that some of these videos have been intentionally made to be more saturated than others. The way to circumvent this would be to create one's own content for the purpose of experimenting and thus control saturation levels perfectly. Due to the constraints of time and capacity, this was not done so. Another one would be to specifically seek videos of similar saturation levels. This however would prove to be a herculean task as videos are motion picture pieces and within the same video saturation levels will vary. Instead, to make this experiment set up with pre made videos more justifiable, I specifically looked for videos in which color was an executional cue. What this means is that firstly and naturally, there is plenty of color in the video (does not mean many colors, but rather as little black and white as possible). This proved to be successful and the chosen videos differed greatly after their color saturation levels had been altered.

The technical considerations regarding lighting and air quality were applied this time as well. The difference this time was that lights were completely switched off as opposed to dimmed. The reason is because this way the saturation in shown videos stood out more as there was barely any other light to interfere with it. The blinds on the windows were slightly opened so as to give enough daytime light for the respondents to see the paper that was in front of them, the one on which they marked their answers.

Another consideration, or rather control, was that both groups participated in the experiment at the same time of day (around 11 am). Essentially, since activation was measured before and after the experiment, it did not matter. The collected data on activation would be enough to see whether there is statistically significant difference in how much the

videos affected their activation levels. However, I decided to execute experiment this way solely for the purpose of greater consistency.

4.1.3.1 Results

The first step in analyzing data acquired in experiment three was to see whether activation and sharing correlate. This is not one of third experiment's hypotheses as this correlation was already found in the previous experiment. Nevertheless, the necessary data for this test was obtained in the experiment and I wanted to see if it would reaffirm the previously established finding. To see this I ran a regression using pre experiment activation and the intent-to-share as the independent and dependent variables, respectively. The regression coefficient for this analysis is 0.325 ($R^2=0.106$; adjusted $R^2=0.079$; $F=4,018$ $p=0,053$). Therefore the second experiment correlation between activation and sharing is corroborated at a somewhat lesser regression coefficient, nevertheless statistically significant.

The second step was to test the hypotheses of this experiment. This meant testing the conditionality of activation and sharing on color saturation of advertising materials. To see if highly saturated colors affect activation of viewers I first looked into the activation means, pre and post exposure to videos, across groups.

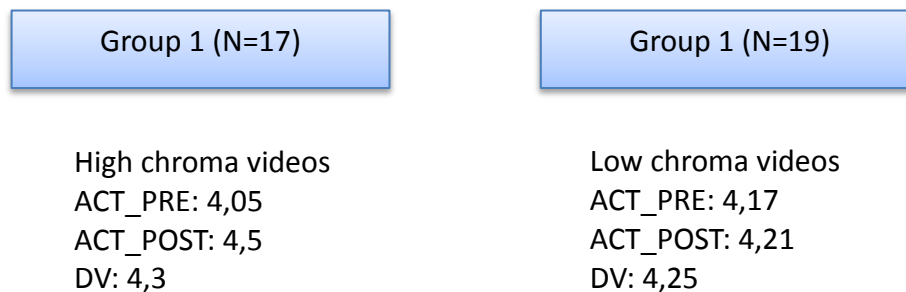


Figure 3 – Means of activation (pre and post experiment) and intent to share between the groups of respondents

If we just look at activation means first, we can see that the group exposed to de-saturated videos was more activated from the beginning of the experiment. Another observation is that both groups' physiological activation increased throughout the experiment. Even though de-saturated colors decrease activation or have no effect on it, we can see that in this experiment the activation of respondents increased anyway. The reason for that is that

activation is susceptible to factors beyond just color saturation, naturally. Most of these have been presented throughout this research so far and include things like shock value, amusement factor etc. In other words, a funny clip, even though de-saturated, can increase activation in the respondent – entertainment value trumps the power of color saturation. This is why instead of controlling for all other possible factors, I simply used the same videos while varying only saturation levels. The data collected is sufficient and shows that even though both groups' activation was increased, it was more increased in the group that was shown saturated videos.

Another reason why activation increased in the de-saturated videos group could be excitation transfer paradigm. In other words, the little activation respondents got from these videos, gradated into a small difference, visible in the post experiment activation. Excitation transfer paradigm, of course, is not tied to saturation. Whatever the source of activation was, according to this theory, it amplifies over a period of consistent exposure.

In order to see whether there is a statistically significant difference between pre and post activation levels across groups, I ran the *paired samples T test*. This test is useful for a type of situation where the same measurement is made two times with a treatment occurring between the measurements. In this case, the treatment in question were the videos shown to respondents. Since the treatments were different across the groups I had to control for respondents' group allocation. In order to see for which of the two groups the treatment material had a stronger effect, I split the file first, using the 'split file' function and *groups* variable as the criterion. This way I could see for which of the groups correlation between pre and post experiment activation was stronger.

	Pre Activation	Post Activation	Corr.Coefficient	Significance Level
Group 1 - Saturated (N=17)	4,05	4,5	0,500	0,41
Group 2 - De-Saturated (N=19)	4,17	4,21	0,351	0,110

Table 11 – Differences between pre and post experiment activation levels in respondents

Since the significance level for the correlation of group 2 is above the allowed level it is impossible to posit with certainty that the correlation coefficient is acceptable. Nevertheless,

since the value is not excessively above the permitted level I can, with a degree of precaution, reject the null hypothesis and accept these coefficients as they are. In that case we can see that group 1 respondents' pre and post activation levels correlate more strongly, meaning that the catalyst of activation level change i.e. saturated/de-saturated video did a better job for group 1, as expected. With this, I can accept the first of two hypotheses of this experiment i.e. the fifth hypothesis of this research: highly saturated (with high level of chroma) colors in advertising videos results in greater physiological activation in viewers.

The second hypothesis of this experiment and the final one of this research was to see if saturation can affect sharing behavior. Basic deduction would suggest that this is the case, as so far in the research I have proven that saturation indeed increases activation and increased activation indeed increases sharing of advertising material. To test this I ran *ANCOVA* analysis. With this analysis it is possible to see if one variable is conditioned by another, while controlling for an unhomogenized, third variable. In this case, the dependent variable is intent-to-share, the group allocation (categorical variable) is the independent variable while the controlled variable is pre experiment physiological activation. The reason why pre experiment activation needs to be controlled is because, as it was shown above, it was not the same. If it had been the same, an *independent samples T test* would have been an appropriate analysis (with the file split according to the *Group* variable) as it would have shown if the means in dependent variable across groups are significantly different. What ANCOVA does for these situations is that it homogenizes the controlled variables, levels them and subsequently calculates new means of the dependent variable as a proportion to the leveled controlled variable.

	Pre Experiment Activation - reported	Pre Experiment Activation - leveled	Intent-to-share reported mean	Intent-to-share mean after ANCOVA
Group 1 - Saturated (N=17)	4,05	4,12	4,3	4,32
Group 2 - De-Saturated (N=19)	4,17		4,25	4,24

Table 12 – Effects of saturation (group allocation) on the intent to share

What we can see above right away is that this does not change the means dramatically – nevertheless, with these new values the analysis is more accurate. Part of the ANCOVA analysis is also a test of between-subjects effects. What this shows is how much of variance in the dependent variable is conditioned by other variables entered in the analysis, in this case group allocation and pre experiment activation. *Partial eta squared* value is 0,107 (p value=0,055) for the *pre-activation* variable which means that roughly 10% of the variance in the dependent variable can be accounted to the activation level in respondents before they were exposed to videos. When it comes to the *group* variable, this value is at 0,003 (p value= 0,748) meaning that 0,3% of the variance in the dependent variable can be accounted to group allocation. This finding however cannot be considered due to very high p value.

However, a better way to understand if the differences in means in the dependent variable are statistically significant is to look at the Levene's test of equality of error variances, a value which is also part of ANCOVA analysis. The statistical significance for this value came out at 0,167 which means that the difference is not statistically significant. This means that hypothesis 5 of this study (Highly saturated (with high level of chroma) colors in advertising videos result in greater sharing of online marketing communications content) is rejected.

In a way this goes against the deduction presented earlier in this section: if saturation leads to activation and activation leads to sharing, then saturation should lead to sharing. Regression analysis with those previous hypotheses has shown that coefficients, even though statistically significant, are not very strong (activation → sharing: $R=0,508$ $R^2=0,258$ and saturation → activation: paired samples correlation, group 1=0,5 group 2=0,351). This is probably because saturation slightly contributes to activation, just like activation slightly contributes to sharing. The power of these variables may drown among many other drivers (listed in literature review) which coexist with them. The fact that saturation is indirectly linked to sharing, through activation (at least in this experiment), makes its potential effect even weaker. Nevertheless, saturation has its many benefits besides the effect on activation, which will be further discussed in the upcoming sections.

5 DISCUSSION

One of the main ways in which the three experiments differed from one another was in whether activation was achieved by using priming material before exposing respondents to the treatment, or if the treatment itself was the source of activation. In experiment 1, the two groups of respondents are shown different material before seeing an advertisement, same for both groups, after which the dependent variable was measured. Thus the *context* sets the desired level of physiological activation. The material in question were virals, pre-tested for the level of physiological arousal they evoke. Conversely, in experiment 2, the material preceding the treatment is the same for both groups, and it is the treatment which is varied between the groups. This kind of design allowed me to gain a deeper understanding of effects of activation derived from advertising content as opposed to stemming from the context in which the material in question is consumed.

In experiment 2 we can see that even though the difference of felt arousal between the groups is not grave, the saturation of the image alone is not powerful enough to affect this significantly. In other words, the group exposed to the saturated image, still remained less activated afterwards, than the group exposed to the de-saturated image. This tells us that using the tactics of color manipulation in still images for the purpose of affecting ones physiological activation is somewhat of a long shot. Experiment 3 shows that it can work, as the group exposed to saturated videos did in fact get significantly more activated, however it took a series of 7 videos to achieve a noteworthy difference. On one hand it means, that it is better to carefully choose the context within which an advertisement will be embedded if one wants to use activation as a catalyst to sharing behavior. Naturally, for practitioners, creating a viral piece that is activating on its own and then embedding it in an activating context would probably be the optimal way to go.

What is important to note here is that the effects of activation on sharing, regardless whether stemming from context or content, are mediocre at best. If we look at the beta coefficients (experiment 1: 0,227; experiment 2: 0,508; experiment 3: 0,325) we can see that activation does not account for a great deal of variance in the intent to share i.e. the dependent variable

in all three experiments. This is why I started off with making a comprehensive overview of sharing drivers. Activation needs to be understood as one of the ingredients in the mix, a way to improve effectiveness of viral campaigns.

Another reason why the coefficients came out as they did is possibly because the priming, or putting respondents in these states was quite short in the experiments. In the first experiment it is a series of three virals which arguably are not enough to have a significant effect. This was supposed to be rectified in experiment three where originally the treatment was supposed to be a series of ten virals, with the tenth one lasting a bit over three minutes. This would have been a very long exposure and the effects and thus coefficients would have come out *stronger*. The reason why it ended up being a series of seven videos was because during the experimentation with group one, the laptop from which the videos were shown malfunctioned (got stuck) on video number 8. After this I decided to stop after video 7 for the other group.

On the other hand, the shorter priming makes the findings more managerially relevant. A very long exposure to priming material would definitely yield more dramatic coefficients, interesting for the academic world, however unrealistic for the applied. The reality is that respondents will be exposed to a viral piece while they are scanning their Facebook news feeds, or YouTube.com channel subscription's new uploads. How physiologically activating scanning a Facebook news feed is arguable – probably not very much. Same goes for checking one's YouTube RSS feed or e-mail inbox. In fact, activating context, even though beneficial, is hard to find. It will be discussed a bit more in the *Managerial Implications* section later.

As for the effects of saturation, experiment 3 clearly showed that saturation does affect activation i.e. increases it. This finding was not surprising as it was earlier established by Gorn et al.(1997). Unlike, in their experiment, I failed to achieve this effect just by using an image (experiment 2). It took videos, and a lengthy series of them. Where exactly this threshold is remains unclear. Namely, the difference between pre and post activations of the group exposed to saturated videos is possibly not equally to be attributed to the seven videos. Perhaps the first few were a sort of warm up. It is impossible to know this while

using a self-reported measure of activation, as the respondents would have to evaluate their levels of activation after each video. If equipment such as a blood pressure pump were used instead, we could see if activation grows as a steady, consistent slope or otherwise. The reason why this is important is because if it would be the case that activation does not grow as a steady slope, but rather needs some more priming before it *takes off*, then looking for context wherein to embed advertising material would probably be in vain. A good place would be television advertising as ads come in pods which last between 5 and 10 minutes. This is also something Singh & Churchill (1987) found when they corroborated the excitation transfer paradigm. According to them, placing the advertisement somewhat later in the pod (if the pod is embedded in activating content such as an action film) would attain best results. This however, even though corroborated in my research as well, has no real value for viral marketing. Virality of television advertising is limited to the ones viewer is surrounded by at the time of seeing an advertisement. And as for the internet, I cannot think of a venue where one would be exposed to such a lengthy series of advertisements.

Regardless of where exactly the threshold for saturation to have significant effect on activation is, it should be considered when creating advertising due to its many other benefits too (likability, attention grabbing, recall etc). And as for effects of saturation on sharing (indirectly, through activation), the correlation was not established in this research. Arguably, since saturation affects activation, and activation affects sharing, there must a link between the two as well. Since, the coefficients of the two correlations established in the experiments are of medium strength themselves, it is possible that the effect of saturation on sharing got lost. This is possibly a matter of experiment design and perhaps if it was done a bit differently a correlation could have been found. The following section is a case study on some of the most successful viral marketing stories of all times, YouTube.com vloggers. They served, in part, as inspiration for some of the experiment design because they make use of all the drivers of sharing identified above. Ironically, they probably do it without the academic understanding thereof and at the same time they achieve the kind of success no company has, to date.

5.1 Case Study: YouTube.com Vloggers

The conception of Web 2.0 resulted in, among many other things, a new entry in the domain of entertainment. Television programs and magazines now had a competitor in the form of individuals equipped with a free YouTube.com account, a cell phone camera and many stories to tell. Unlike traditional entertainment channels, these individuals were free to express themselves as they wished, create risqué content as well as interact with their audiences. With no advertising budgets, these individuals, mostly teenagers, relied solely on viewers of their content sharing it with their friends. Essentially it means that their marketing communications mix consists of only one method, viral marketing. Through trial and fail approach they have learned over years what kind of content gets shared more than other and through this collective learning have created somewhat of a uniqueness to the content they create and publish – a sort of a style. For instance, talking very fast in their videos, is a quite common element which will be discussed later on in this section.

The ones who find themselves at the top of popularity charts are no longer just creative teenagers with cellphone cameras. Many of them have managers, production crews and advertising budgets now. Beyond this they became pop culture items and gained some attention from the traditional media. Some of them even have celebrity guest star in their videos (e.g. Robin Williams in Ray William Johnson's *Equals Three* channel).

It is quite common that their content is organized into several YouTube.com channels, thematically varied between one another. In a way it is akin to television channels. Beyond this resemblance, some of their content comes in the form of talk shows, film or music videos reviews etc. What makes them different from television channels, as mentioned earlier, is the creative freedom they have. They can swear, push the envelope with their humor and most importantly, interact with their audiences which most of them do. The main reason why they are part of this analysis is because the kind of virality top YouTube.com vloggers create is still in the realm of dreams for companies and their commercial content. Some of the most successful YouTube.com commercial virals such as *Will It Blend?* or *Old Spice: The Man Your Man Could Smell Like* have achieved only a fraction of the success of these individuals.

For instance, Ray William Johnson, the most successful vlogger at the moment is part of the Guinness Book of World Records for having one of the most subscribed channels ever (channel *Equals Three* with over 6,5 million subscribers). In one of his other channels, named *Your Favorite Martian*, which was active for about a year, he attained 467 million views, across 43 videos. To put these numbers in perspective, *Will It Blend?*, a textbook example of a successful commercial viral, gained 220 million views, across 129 videos and over the period of 6,5 years.

With millions of subscribers vloggers have, each video they publish has a great jump start in terms of impressions it may get. In fact, most of their videos get several million views. What makes these figures even more impressive is the fact that the frequency at which they publish is daily, several times per week or once a week at least.

There is no universal ranking of most successful YouTube.com vloggers so I have made one myself by making an average of rankings that come up when *top 5/10 YouTube.com vloggers of all time* is typed into the search engine. What this gave is the following ranking:

1. Ray W. Johnson
2. Smosh
3. Jenna Marbles
4. Nigahiga
5. Shane Dawson

The world of these vloggers is quite dynamic though, therefore this ranking is only a snapshot of the situation in early 2013. The figure below is a snapshot of randomly chosen videos thumbnails of above listed vloggers.

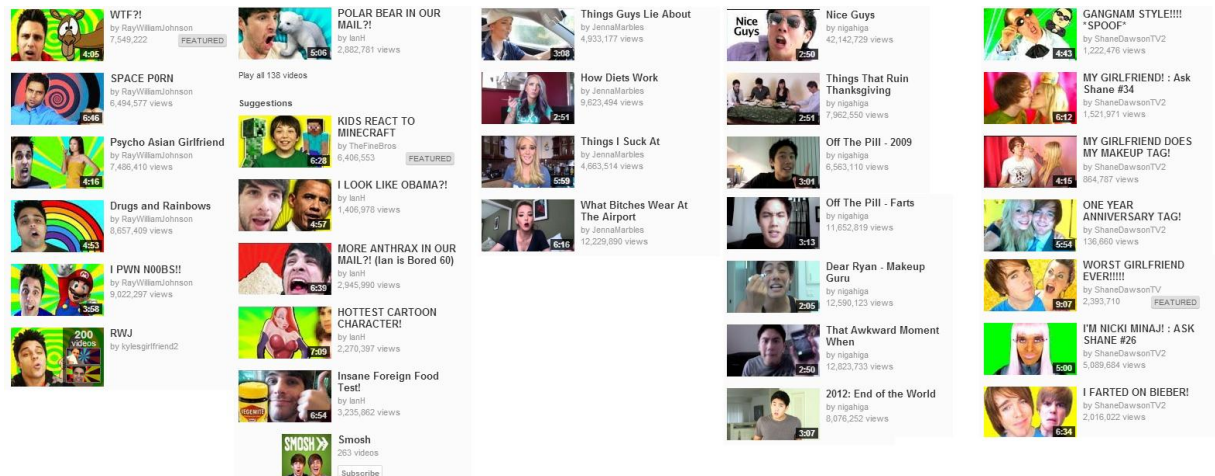


Figure 4 – Top 5 YouTube.com vloggers (from left to right - Ray W. Johnson, Smosh, Jenna Marbles, Nigahiga and Shane Dawson)

At a first glance, one can notice that the element of color is stylistically similar within some of these bloggers' video thumbnails. These are bold, often just primary colors and in most cases highly saturated. Arguably, this is so as to make the thumbnail stand out within the search results or the *recommended videos* sidebar. For some of them, the striking, saturated colors are prominent throughout the videos as well, either as some sort of a backdrop (Shane Dawson), or as part of special effects (Smosh).

The second element which can be observed from the thumbnails overview are the capital letters. Text written in capital letters creates the impression of screaming. Arguably this tactic is part of the overall strategy to make the thumbnail and the video elicit a stronger reaction in the viewer, move her i.e. physiologically activate her. Some of the video titles are followed by exclamation and question marks adding to the intent.

Another common thread are the facial expressions shown in the thumbnails. These are hardly expressing calmness and indifference. They are rather facial expressions of shock, disgust, anger and excitement, all emotional states linked to high physiological activation. After all, this content is entertainment content and the thumbnails, naturally, depict a preview of this. Unlike television entertainment, these individuals do not have stellar advertising budgets, if any. Therefore, they resort to these tactics which make their videos' thumbnails unignorable.

If I refer back to the list of physiological activation tactics, elaborated earlier in the research, and compare it with the vloggers' content, I find that they indeed use all of these.

	De-activating	Activating
Color	Low chroma	High chroma
Text	Emotionally neutral words	Emotionally charged words
Music	Low tempo (~75bpm)	High tempo (~135bpm) *
No.of edits/cuts in videos	Slow pace	Fast pace
Sound production effects	No effects	Accelerated speech + effects

Table 13 - Effects of ad elements on physiological activation in ad consumers

As mentioned earlier, saturated (high chroma) colors are not only used in thumbnails, but in the videos as well. Only some of them use a highly saturated backdrop to their videos (e.g. Shane Dawson – 13 and PREGNANT?!³), while others use it in effects, segway screenshots or in their animated videos (e.g. Ray William Johnson – Santa Hates Poor Kids⁴). As for the text or rather spoken words, it is along the lines of blog writing which is subjective and at times emotionally charged. This is not journalism per se – it belongs to the category of UGC, user generated content of Web 2.0, and as the name suggests, it is created by users, in other words consumers, and not professionals. Swearwords and sometimes even political incorrectness are common elements in a lot of these videos (e.g. Ray W.Johnson – The Stereotypes Song⁵). It is important to note that the vulgar language is not employed in a demeaning manner but rather as a type of risqué comedy. In fact, most of these videos are well spirited and even idealistic which supports the findings of Dobeles et al.(2005) who found that such content gets shared more.

The tempo of music used varies, however, great majority of musical pieces that are used are upbeat. All of the listed vloggers are singers as well. They expand their brands, so to speak, and record songs, even albums sold through the iTunes store. Mostly these are comical and consistent with the type of entertainment they create for their audiences. And as mentioned

³ <http://www.youtube.com/watch?v=ohVwD4FyeoE>

⁴ http://www.youtube.com/watch?v=U_Q2cXLhHhU

⁵ <http://www.youtube.com/watch?v=wCgx8zM3woQ>

already these are strongly worded, and sometimes even explicit (Jenna Marbles – Bounce That D***⁶).

When it comes to editing, these vloggers have developed something which could be called a vlogger style. This means having a lot of cuts in the videos. It is rarely the case that the camera is still, while the presenter speaks. Instead, within a single sentence, several cuts will be done. Sometimes slightly changing angles and sometimes the presenter simply moving slightly, tilting their head etc (e.g. Ray W. Johnson – WORLD'S GREATEST NINJA!!⁷). In addition to this, effects such as pop up imagery/videos/illustrations are quite common as well. One will hardly drift away in their thoughts when watching one of these videos. They are designed to keep your attention from beginning to end. And beyond that, to move you, make you laugh and eventually subscribe and share.

The final tactic in the list are sound effects applied to voice, more specifically accelerated speech, sometimes resembling cartoon characters' voices. The pace of these videos is quick, however not quicker than most entertainment content in traditional media. Some vloggers take it to the next level and do their whole videos with accelerated speech. A vlogger named Fred held the throne as the most popular YouTube.com vlogger for many years. According to some of the rankings, he is still one of the top five. Most of his videos are done with him speaking very fast and with high pitch effect applied to his voice (or perhaps he himself manipulates his voice). An example of this is his video FRED: Fred Goes Grocery Shopping Feat. Annoying Orange⁸, which got astounding 50 million views. Some other practitioners of these effects did not make the top 5 cut. Nevertheless their content is along these lines of all of these tactics described above (e.g. Annoying Orange⁹ and What the Buck Show¹⁰ etc).

With all this in mind, it is safe to say that this type of entertainment is of somewhat cartoonish character. This is not surprising as the target audience is mostly teenagers. Vloggers' videos in a sense come as a substitute to the entertainment their audiences

⁶ http://www.youtube.com/watch?v=YwLMM_QBkMc

⁷ http://www.youtube.com/watch?v=Rur_5gFq3bg

⁸ <http://www.youtube.com/watch?v=YjVKYzy4ek8>

⁹ <http://www.youtube.com/watch?v=by0tQMgrjJc>

¹⁰ http://www.youtube.com/watch?v=3G_8AYFBa6o

consumed as pre-teens. And if we analyze cartoons through the above listed tactics of increasing physiological activation, we can see that they as well fit the model. In the world of vloggers, protagonists are not a cat and a mouse and their never ending and exhilarating chase around the house. Instead these are real people, slightly older than their audiences, discussing about more grown up topics such as friendships, relationships, self-confidence, pop culture etc. and doing it in a cartoonish manner. It is no secret to viral marketers that these audiences are the most active internet users and in particular content sharers. Perhaps making something akin to the content of YouTube.com vloggers, or at least employing the same tactics, would yield great virality in return.

6 IMPLICATIONS

6.1 Theoretical

The two main theories that this research builds on are: that of Berger & Milkman (2011) about the conditionality of social sharing on physiological activation and that of Gorn et al.(1997) about the causal link between color saturation (chroma) and physiological activation. This research corroborates both of these theories. It also builds on the theories of Berger (2011) and Berger & Milkman (2011) in so that the object of sharing this time is commercial material i.e. advertisements. The importance of this difference was elaborated earlier and refers to the duration of consumption of these different types of content. This correlation is to the best of my knowledge an original finding and adds to the cumulative knowledge on viral marketing and social sharing in general, thus far collected. When it comes to the findings of Gorn et al.(1997), my findings even though supporting their claims, stem from video material rather than imagery, as it was the case with them. In other words, my research does support their hypothesis about the correlation between saturation and activation, however I established it only with video material. This, however, could be attributed to experiment 2 design, in which the self-reported measure of activation was applied only after the treatment. So, it is possible than initial states of respondents varied even more dramatically before the experiment began, meaning that the image saturation did in fact have an effect, however unnoticed by me, as I have not measured their initial activation levels. Nevertheless, it remains likely, after considering all three experiments that the indirect effect of saturation on social sharing is too weak and should only be considered due to all other benefits of saturation and in a combined effort with other drivers of sharing, listed above.

The second most important theoretical contribution of this research is the comprehensive overview of the drivers of social sharing presented in the literature review. Much has been written about viral marketing, a digital progression of word-of-mouth, since it came to the scene in 1997. The overview of these different streams of research that came into existence since then should help future researchers better understand the gaps that need more

attention. It should also give us a deeper understanding as to what goes into creating a successful viral campaign.

The unsuccessfulness of experiment one calls upon more research to be done to understand the links between psychological predispositions and sharing behavior. If one is psychologically predisposed to share more, how can this be operationalized and capitalized on? Is it only academically interesting or does it also have a practical application.

6.2 Managerial

The key takeaway of this research for practitioners is that there are ways in which advertising content can be modified so as to increase its potential *shareability* i.e. virality. This, by no means, suggests that all viral content should be overly chromatized pieces with explosions and violence in them. A driver of activation can also be thought-provoking or risqué copy! This research has established that activated consumers will share more and *how* this activation will be achieved is left to practitioners' imagination. If the brand's persona permits, applying tactics such as saturated colors and/or upbeat music should be embedded. It is however important not get *locked into* just these ways of activating consumers. While activation leads to sharing, it is not only achieved through these operant tactics. Since activation is defined as a change in blood pressure, electroencephalographic activity, contraction of facial muscles etc (Cacioppo & Petty, 1985), an activating advertising piece is any that makes us dedicate the extra amount of attention to it combined with some sort of physiological reaction. For instance this advertisement for a funeral home ¹¹ is remarkable, precisely because one would assume that a typical brand persona of a funeral home does not permit this. It is a funeral home ergo the advertisement should be sad and serious. Color saturation was not a consideration in this advertisement, as it is black and white, nevertheless it does elicit a physiological reaction, probably in the form of a smile or a grin, which is enough to be considered a physiological reaction. In fact this advertisement has *gone viral* and gotten a great deal of attention in the social media. Its unorthodox execution is what Dobelet al.(2007) call the element of surprise, typical to most viral advertising. Most advertising

¹¹ <http://www.hemmy.net/images/arts/comealittlecloser.jpg>

attempts to be entertaining – only that which is in some way remarkable is worthy of consumers talking about it.

For practitioners it is important to distinguish between activating content and activating context. Activating content is any content manipulated according to the tactics described in *Physiologically Activating versus De-Activating Content* section. Activating context is any time of day or any particular occasion during which subjects will already have been activated. The times of day during which subjects are mostly activated are varied and essentially utterly subjective. We could however generalize to some extent and say that right after drinking a cup of coffee one is highly activated. Another occasion would be during sports activities and any other physical activity. Beyond physical activities, one can be activated while sitting on the couch or in front of the computer and watching an action movie or playing a violent computer game. The challenge here is to make sharing within these specific contexts easy. How do we advertise to someone right after they have finished a cup of coffee or while they are jogging? And even more importantly – how do we make it easy for them to share the advertisement at the spot? By putting an advertisement or a QR code leading to an advertisement at the bottom or the side of their take away coffee cup? Perhaps unorthodox, but that is a quality which is sought after. By advertising to consumers while they are doing sports? Perhaps, however we must keep in mind that the viral mechanics i.e. technology that enables sharing such as smartphones must be ready at hand (thus making a swimming pool the wrong venue, however a gym might be a good place).

Naturally, combining an activating advertising piece with an activating context would be the best way to go. And in order to increase the chances of virality, practitioners should go even beyond this and include all other drivers of social sharing, as laid out in the literature review section. A consideration should be given to all of those when constructing a campaign.

For instance, if we go back to the case study of YouTube.com vloggers, arguably the most successful viral marketers to date, we can see that their content creation strategy goes beyond the attention grabbing and activation increasing tactics to include all other drivers of sharing. As a reminder, the four drivers I have identified were: physiological activation, psychological motivation, incentives and influentials. The first had been thoroughly

examined in the section on vloggers, a bit earlier. When it comes to psychological motives for sharing that they trigger in viewers with their content, it is hard to say whether these are actually those as laid out by Ho & Dempsey (2011) – individuation and altruism. Nevertheless, part of the appeal of their content lies exactly in the realm of psychology. A common thread in many vloggers' videos is self-acceptance, acceptance of others, positive outlook on life, dedication, ambition and love. Obviously, these are topics which resonate with the target audience of predominantly teenagers and specifically with the zeitgeist of bullying and teen suicide that persists. Either way, a lot of those videos have a therapeutic effect. If this is something that leads to sharing or only to one feeling better about themselves, it is hard to say, as these links have not been made before. Either way, they are playing into an element quite important for viral content which is: zeitgeist and pop culture (Briggs, 2009) on one hand and positivity and idealism (Dobele et al.2005) on the other.

When it comes to the third driver, incentives, things are much clearer. One of the most common elements in their videos is asking viewers a question. Viewers then respond in the *comments* section and by doing so participate in a draw of sorts. Sometimes, the vlogger will pick random comments, read them in the next video, answer a question if a comment was actually a question etc. Some of them take it further and send gifts to random commenters, usually branded items. Does this kind of incentive lead to sharing? Yes and no. It depends on commenter's YouTube.com account setting i.e. whether her comments are automatically re-posted to her Twitter or Facebook accounts. Either way, this interaction has more benefits than virality alone. Through it they establish rapport and build long term relationships with their viewers i.e. customers and in a sense do a type of relationship marketing.

Another form of incentivizing is asking viewers to record video responses to vloggers' videos and publish them. Vloggers then choose their favorite ones and build on them by continuing the discussion in the next video thus giving the responder recognition and exposure. This way, the viewership that the video response attains is linked to the original video, vlogger's video. Chances are that those who see the video response will also look up the video to which that one is a response. Essentially, this is what virality is – the

respondents are perpetuating the message published by the vlogger except that in this case they appropriate and modify it before passing it on.

Finally, when it comes to influentials, it is probable that viewers of these videos regard the vloggers behind them as somewhat of role models. Vloggers start out as teenagers with cameras but at this point they have large production crews behind them which inevitably must include marketers who *shape the brand* so to speak. It is not surprising then that the brands expands into music, films and merchandise for most of these vloggers. Another way in which they play into this drive is by tapping into each other's target audiences. Each of them has a style and an audience they cater to, and the way they expand to each other's customers is by guest starring in each other's shows thus endorsing each other's brands. This way, one's own vlogger/own influential introduces her audience to a new influential in hope that the viewer will be consuming both *brands*.

7 CONCLUSIONS

Viral marketing, even though sometimes stylistically unique, is essentially any marketing communications piece that has garnered an exceptional amount of attention among consumers and/or media. Key differentiator is that its consumers share word-of-mouth about it because it is somehow exceptional. Beyond this, the WOM becomes the major instrument in the dissemination of the message. As for this quality of being *exceptional*, I hope it became clear what it is after reading this research so far.

It is also important to understand that viral marketing, as it is for the most part internet bound, is just as dynamic as the platform it exists on. For instance, the newest entry of social media changed viral marketing in so that it made sharing even easier and even more far-reaching. As our lives become more digitized, especially with the rising use of smartphone devices, it is likely that viral marketing is here to stay. Researches should be done frequently so as to keep track of how this marcom tool morphs. As a piece of the integrated marketing communications puzzle it is arguably unbeatable as a tool for cost effective raising of awareness.

While the tactical aspects such as color saturation and the context within which the content is consumed are important, one must not get lost in these and forget the big picture. The big picture is that it is a marketing communications piece and virality is one of the desired effects. Whether people will talk about it or not, depends on whether it is noteworthy or not. An advertisement that looks just like any other advertisement will not go viral, regardless of the amount of color saturation in it or the loudness and speed of music in its background. This takes us back to Koenig (1985) who posited that people share more in times of conflict, crisis and catastrophe (the 3 Cs). Berger & Milkman (2011) have shown that valence of information is secondary to the level of activation it elicits. If the information that has reached us moved us, literally (adrenaline level, blood pressure, facial muscles etc.), chances of us re-telling about it are greater. After all, the kind of news or gossip that make us open our eyes wide and exclaim *NO WAY!!* is the kind of news or gossip we will be likely to tell others about. This stands even more so in the present times, the times of advertising

oversaturation and annoyance. Actually, this oversaturation is not endemic to advertising. The present times are the times of information oversaturation. Individuals are faced with the challenge of organizing the information that inflows into their lives. If advertisers want to be noticed, THEY BETTER HAVE SOMETHING ACTIVATING TO SAY!!

7.1 Limitations

There are several ways in which this research could be improved. Primarily this concerns that fact that these were lab experiments. This setting was good as I could isolate the needed variables, however, the measured variable, intent-to-share, includes a leap of faith. The intent was expressed on two 7-point scales, while in reality the action of sharing either happens or it does not. It is not a subject to gradation, but rather a dichotomous decision. Thus a field corroboration of the findings is called for.

A similar issue exists with the other measure used in the research i.e. the measure of physiological activation. The three, 7-point scales caused some confusion among the respondents. For them it was hard to distinguish between e.g. passivity and a low level of energy, anchors of the different scales (in spite of the explanation of these terms provided with the scales). The issues with self-reported versus equipment measured physiological activation were discussed earlier. The way that it should ideally be done is to employ both methods as neither is perfect.

Another aspect of the lab setting which challenges these findings is exactly the isolation in which respondents were exposed to the treatments. The rooms were mostly dimmed and quiet, thus making sure all of respondents' attention was on the treatment i.e. images and videos. The reality is that one is exposed to a multitude of stimuli together with viral messages. For instance, while one is surfing the internet, the TV might be on, there may be music in the background or any other kind of distraction may be present which could dilute the power of the viral. This is particularly relevant because the activation a viral could elicit in someone might get lost within the plethora of other stimuli within which contemporary, multimedia multitasking consumers regularly find themselves.

And finally, a way should be found to incorporate other drivers in this research as well i.e. what I attempted to do in experiment 1. I failed at it at the first try and subsequently just focused on activation as a driver of sharing, however the interaction effects of these two, and other drivers, remains to be researched.

7.1 Future Directions for Research

After completing this research I see plenty of directions other researchers could go in when it comes to understanding the drivers of social sharing of information on the internet. Firstly, a replica of these experiments in a field setting would be desirable so as to see how these variables interact in an environment that is not as sterile as the lab setting. I will organize other future directions for research in three categories: activating content, activating context and other drivers.

This research focused only on one of several tactics for creating activating advertising content i.e. color saturation. A similar kind of experimentation could be done with music or any other ad element as the manipulated one. This way we could better understand which of the ad elements has the strongest impact on viewer's activation. Building on this, studies could be done to better understand the value of activation in consumers. From the academic perspective, quite a bit has been said about it, so perhaps case studies, such as the one I have presented earlier could be done, to see successful applications of this knowledge.

When it comes to activating context, I have briefly analyzed it in one of the preceding sections and said how these are individual and not easily generalizable. Nevertheless, more insight is needed in this area. Perhaps respondents could be observed throughout the day in order to understand when they are most activated. Simple technologies such as smartphone application pulse meters could collect the data indicating one's arousal levels during one day. Some qualitative techniques such as interviews or observation could then complement this in order to get a comprehensive understanding. With this we would know which times of day/situations during the day would be best for targeted advertising.

Finally, beyond just the world of activation, other drivers could be further researched. Firstly, interaction effects between different drivers such as the way I have tried to test these in experiment 1. Intuition suggests that combining all drivers would increase the potential virality of a message. Nevertheless, it would be interesting to know which of those is most potent and this kind of knowledge would be both academically and managerially interesting. For example, does playing into one's altruistic motivations have any power if ad's execution resulted in a de-activating ad?

Hopefully this research will inspire other directions as well, beyond the ones I have listed above. As mentioned before, the field of viral marketing and digital marketing communications in general is dynamic and thus demands constant academic attention in the form of revision of already established findings as well as understanding aspects of it which still remain unknown.

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9 APPENDICES

Measures

Physiological Activation (Berger & Milkman, 2011):

How do you feel right now?

very passive passive somewhat passive neither passive nor active somewhat active active very active

very mellow mellow somewhat mellow neither mellow nor fired up somewhat fired up fired up very fired up

very low energy low energy somewhat low energy neither low nor high energy somewhat high energy high energy very high energy

Explanation of the answers:

Passive – still, static, motionless, in the same body position

Active – moving, fidgeting, smiling/frowning, gesturing with hands etc.

Mellow - a feeling of ease and relaxation; can also be a negative emotion such as sadness

Fired up - a feeling of excitement; a rush, a surprise; emotions such as joy, anger, disgust

Low energy - low capacity or tendency for intense activity





High energy - high capacity or tendency for intense activity

Intent to Share (Chiu et al.2007)

VIDEO 1	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
This video is worth sharing with others							
I will recommend this video to others							

Experiment 1

Pre-tested virals:

Virals (+hyperlinks for videos):	Video Thumbnail / Image
<p>Scare Maze Reaction (http://www.youtube.com/watch?v=X93ILkWJeUc&hd=1)</p>	 A video thumbnail showing a man with a mustache and dark hair, wearing a black t-shirt, looking directly at the camera with a surprised expression. He is in a room with shelves in the background. A timestamp in the bottom right corner reads "7:40:35 PM MAY 21 2006".
<p>Singapore Airlines (http://www.youtube.com/watch?v=fNEJrd6GkSY)</p>	 A thumbnail for a Singapore Airlines advertisement. It features a woman in a patterned dress standing in front of a building, possibly an airport terminal. The Singapore Airlines logo is visible in the bottom right corner.
<p>Whiskas</p>	 A thumbnail for a Whiskas advertisement. It shows a close-up of a grey and white kitten's face as it plays with a clear glass ball. The Whiskas logo is in the bottom right corner.
<p>Pedigree Doggie Dentures</p>	 A thumbnail for a Pedigree advertisement titled "DOGGIE DENTURES". It features a close-up of a smiling, fluffy brown dog's face. Text at the top says "DOGGIE DENTURES Because brushing is just too hard." At the bottom, there is a small image of a Pedigree Dentalastix product box and some text: "Or there's DENTASTIX. This treat that's clinically proven to reduce up to 80% of water-borne bacteria. Dogonut.com".

Quicksilver Dynamite Surfing

(<http://www.youtube.com/watch?v=6xfBNxNds0Q>)



Cabo Advertisement

(http://www.youtube.com/watch?v=Qw_oBQ7pOdY)



Utopolis Cinema



Rawi Warin Resort & Spa Advertisement



Bungee Jumping Prank

(<http://www.youtube.com/watch?v=pf9WNMqENiA>)



Eucerin

(<http://www.youtube.com/watch?v=Y8l2zebOapI>)



Spa Center Advertisement

(<http://www.youtube.com/watch?v=2lwCEBkgr5Q>)



Levi's: Freedom to Move

(<http://www.youtube.com/watch?v=qY1T4YAzs14>)



Panda Cheese: Never Say No to Panda

(<http://www.youtube.com/watch?v=671iq8zRdT>)



BMW



Experiment 2

Viral 1:



Viral 2:



Viral 3:



Viral 4 / treatment (saturated, group 1)



Viral 4 / treatment (de-saturated, group 2)

I JUST MET YOU
AND THIS IS CRAZY
BUT HERE'S SOME MILK
SO DUNK ME MAYBE

OREO

