

UNIVERSIDAD COMPLUTENSE DE MADRID
FACULTAD DE CIENCIAS ECONÓMICAS Y EMPRESARIALES
DEPARTAMENTO DE COMERCIALIZACIÓN E
INVESTIGACIÓN DE MERCADOS



TESIS DOCTORAL

**Critical factors in message adoption: an application to viral marketing
campaigns**

**Factores críticos en la adopción del mensaje: una aplicación a las
campañas de marketing viral**

MEMORIA PARA OPTAR AL GRADO DE DOCTOR

PRESENTADA POR

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Madrid, Septiembre 2015

I dedicate this thesis to my family, and especially to Irene,
Alonso and Eva

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ABSTRACT

We are immersed in a digital revolution that impacts the whole of society and is shifting the status quo of our daily life. We are fully connected and billions of messages are being shared every day thanks to Internet (i.e. the most popular mobile apps are messaging apps). This digital revolution provides Marketing a new communication opportunity to interact with the target audience in an easy and cost effective way: viral marketing. Although decades of research suggest that interpersonal communication changes our behaviour, there is no agreed conclusion about why and what certain messages have more influence than others. Marketers find it difficult, if not impossible, to predict viral success (Watts, Peretti and Frumin, 2007). The main question scholars and marketers are facing is: what are the critical factors to consider when designing a viral marketing campaign, to achieve a high degree of message adoption and consequently to attain success?

Objective

The main goal of our research is to shed light and to understand what critical factors are for message adoption in an effective viral marketing campaign application. The specific objectives are four: First, to examine how author credibility, media credibility and the content characteristics (format, testimonial, storytelling and emotional charge) influence message credibility. Second, we examine the message credibility and message adoption relationship. Third, we examine the mediation role of emotions in the relationship between message credibility and message adoption. Fourth, we examine the moderating role of controversy in the relationship between message credibility and message adoption.

Literature review

First, this research reviews message adoption theories (Chaiken, 1980; Sussman and Siegal, 2003; Rabjohn, Cheung and, Lee, 2008). Second, we highlight that the author credibility and media credibility are factors for the message adoption. Even though, in Internet environment these factors are more important. Third, we deeply review viral marketing theories (Godes and Mayzlin, 2004; Woerdl et al., 2008; Cruz and Fill, 2008;

Saxena et al., 2012). Fourth, we show virality process and virality measuring proposed by Saxena et al. (2012)

Thus, initially, we point out that message content, characteristic of diffusion (media) and source credibility (author) are some findings of critical factors for message adoption and virality, stated by Woerdl et al. (2008)

Then, we deeply review credibility factors (author, media and message credibility) reviewing latest authors (Sundar and Nass 2001; Metzger et al., 2003; Goldenberg et al., 2005; Lee, Kim, and Chan-Olmsted, 2011; Berger, 2013)

We also review the content dimensions theories. We point out what content factors influence message credibility (Berger and Schwartz, 2011; Berger and Milkman 2012; Lundqvist, Liljander, Gummerus and van Riel, 2013; Berger, 2013; Shoeb and Khalid, 2014)

Later, recently studies discussed about the influence of emotions on the message adoption and its implication of virality, they analyze the emotions from several point of view. First we review the latest studies about how the emotions are raised, understanding the process of creating emotions from a stimulus. Second, we analyze the literature about the emotions evoked by marketing messages, and deepen on arousal emotions. Third, we point out the literature of clustering emotions

Finally, we review the existing literature that discussed about controversy and its influence on message adoption and its application on virality (Saxena et al., 2012, and Chen and Berger, 2013)

Conceptual framework and proposed model

We provide a conceptual framework and a model for message adoption. This model shows, first, the direct effect of message credibility on message adoption. Second, this model shows the mediating influence of arousal emotions on the relationship between

message credibility and message adoption. Third, we show the moderating influence of controversy on the relationship between message credibility and message adoption. The conceptual framework expands this model with the factors that influence message credibility (author credibility, media credibility and content dimensions (format, testimonials, storytelling and emotional charge))

Methodology

To achieve these objectives and to test the conceptual framework as well as the proposed model, we analyzed a real online viral marketing campaign (mainly video based), with 3,251 online opinions and over 6 million video visualizations.

The viral marketing campaign was released in four phases, with 17 different messages, mainly video, in several internet media, with high impact on YouTube and on the Company Web site.

We have used two unit of observations, first, each of the 17 marketing message delivered by the viral marketing campaign and second, the 3,251 online opinions generated in Internet, from the viral marketing campaign. The main media analyzed for the 3,251online opinions was YouTube and in the Company Web site.

On the other hand, our study considers some observed variables (controversy, message adoption) and some others inferred. We have used human for inferred variables, raters as coding method, following the recent research (Berger and Schwartz, 2011; Berger and Milkman 2012; Berger, 2013). For choosing this coding methodology, we have considered that there is no current automatic tool that could provide more accurate result on message and online opinions analysis than human coders (Thelwall, Buckley, Paltoglou Cai, and Kappa, 2010; Scharkow, 2013)

Consequently with the previous studies (Laros and Steenkamp, 2005; Tronvoll, 2011 and Berger and Milkman, 2012), we define the arousal emotions descriptor as happiness, fear, anger and sadness.

Results

Regarding the conceptual framework, our results show that some factors such as author credibility, media credibility and storytelling influence highly on message credibility. Our results also show that other content dimensions (format, testimonials, and emotional charge) have a significant lower influence on message credibility

First, in viral marketing context, we confirm direct relationship between message credibility and message adoption.

Second, our results show that content that evokes high arousal emotions has high mediation effect in message adoption. Happiness, fear and anger, as high arousal emotions, have partial mediation effect on the relationship between message credibility and message adoption. On the other hand, our result can not conclude the mediation effect of low emotions (sadness) on the relationship between message credibility and message adoption. The results for high arousal emotions in the online video viral marketing context are coherent with previous findings in other contexts (Berger and Schwartz, 2011; Berger and Milkman 2012; Berger, 2013).

Third, we also find out that controversy is a moderation factor of the relationship between message credibility and message adoption, this moderation effect is inverse: our results show that low controversy positively moderates the relationship between message credibility and message adoption. On the other hand, our results show that high controversy negatively moderate the relationship between message credibility and message adoption.

Discussion

The new digital revolution of internet, as a communication media, implies that marketing use more and more the viral marketing campaign. Marketers want to understand what the critical factors are for an effective viral marketing campaign. Our research sheds light of some critical factors that influence on message adoption and its online viral marketing application.

In the online video viral marketing context, our findings confirm the recent literature on message adoption and its application on viral marketing. In this context, first, we validate that author credibility and media credibility highly influence message credibility. On the other hand, we conclude that storytelling highly influence message credibility. As point out in the literature review, the effectiveness of storytelling, gives a reason for the message to be credible and to be shared as that engages discussion among individuals (Berger, 2013; Lundqvist, Liljander, Gummerus and van Riel, 2013). The motivation to share, as stated by Yusufova (2013), is based on self-actualization, self-expression and social recognition or reputation as well as earning social currency through viral sharing. Finally, we confirm that format, testimonial and emotional charge has a significant direct influence on message credibility; although in our viral marketing context, we have concluded that this direct effect has low effect on message credibility.

In the online video viral marketing context, second, we confirm the direct relationship of message credibility and message adoption.

Third, we confirm recent studies findings mainly on arousal emotion theories (Berger and Schwartz, 2011; Berger and Milkman, 2012; Berger, 2013). We observe the mediation effect of arousal emotions in an online video viral marketing. As stated by previous authors, emotions influence more from its arousal than from being positive or negative. Arousal emotions are active emotions that drive action (such as message adoption and the message viralization). As we conclude in our research, high arousal emotions mediate highly on the relationship between message credibility and message adoption. High arousal emotions tested, happiness, anger and fear, has been demonstrated to have a partial effect on relationship between message credibility and

adoption message. This conclusion underpins previous theories tested in other contexts. (Berger and Schwartz, 2011; Berger and Milkman, 2012; Berger, 2013).

Fourth, we highlight that subjects are concerned about the other's opinions (Argo, White and Dahl, 2006). Subjects want to be social accepted (Reiss, 2004). Therefore we are prone to go in favor of the majority, in order not to have interpersonal conflict (Buss, 1990). People follow social proof ideas. Therefore, controversy can increase discomfort (Chen and Berger, 2013). We confirm this conclusion in the online video viral marketing campaign context. Our findings show that low controversy is a significant moderator on the relationship of message credibility and message adoption. We conclude that high controversy has negatively moderation effect in the online video viral marketing campaign context.

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Limitation

Our research is based on field empirical data from a real online viral marketing campaign. We could say that this is not representative enough. Nevertheless, the number of opinions (3,251 opinions) and number of visualization (6 million) provide us a large data set to test both conceptual framework and our proposed model for message adoption

Additionally, since we use manual procedure, we use human coders to rate. Thus, robustness could be stated as a limitation for this study. However we have followed the recent studies coding methodology (Berger and Milkman 2012, Chen and Berger, 2013, Berger, 2013). In addition to that, current studies show that the automatic tools are less accurate than the manual analysis (Thelwall, Buckley, Paltoglou Cai, and Kappas, 2010; Scharkow , 2013)

Direction for further research, future implications and marketing implications

First of all, we recommend developing a research, in a control context, about the factors identified that influence message adoption. On the other hand, it would be complementary with our research to test our findings in other type of viral marketing campaign. Future research might explore the proposed critical factors in message adoption and its application on mobile viral marketing context.. Future work might also examine the size of controversy moderation effect.

On the other hand, we propose for future studies to analyze other critical factors on the message adoption that has been stated in the literature review (seeding factor, blending marketing strategy of offline and online, ...)

For future implication, we point out that future boost of Big Data Solutions and Sentimental Analysis tools will allow us to improve testing of the conceptual framework and our model proposed for message adoption. These tools will provide us better understanding and more accurate information from marketing message and from internet opinions generated by the viral marketing campaigns

For marketing implication, this research defines a conceptual framework and a model for message adoption considering overall communication factors (author, media, content and receiver) allowing marketers to better define a online video viral marketing strategy and to maximize their results. Our research sheds some light on some critical factors for a viral marketing campaign to be more effective.

KEYWORDS

Viral Marketing, credibility, emotions, controversy, message adoption

RESUMEN

Estamos inmersos en una revolución digital que alcanza a toda la sociedad, cambiando nuestra vida cotidiana. Hoy en día estamos constantemente conectados e intercambiamos millones de mensajes gracias a internet (por ejemplo las aplicaciones de mensajería son las más utilizadas en el móvil). La revolución digital ofrece al marketing una nueva oportunidad de comunicación y de interaccionar con el público objetivo, y una forma fácil y eficiente, en términos económicos, como es el marketing viral. Aunque a lo largo de las últimas décadas, los investigadores sugieren que las comunicaciones interpersonales cambian nuestro comportamiento, no hay un consenso de por qué y cuáles son los mensajes que influyen más que otros. Los responsables de marketing encuentra difícil, si no imposible, predecir cómo lograr el éxito a través de las campañas virales (Watts, Peretti and Frumin, 2007). El principal interrogante al que se están enfrentando, tanto los investigadores como los responsables de marketing, es el siguiente: ¿cuáles son los factores críticos a considerar cuando se diseña una campaña de marketing viral, para lograr un alto grado de adopción del mensaje y consecuentemente lograr el éxito?

Objetivo

El principal objetivo de la tesis es mejorar el entendimiento de los factores críticos en la adopción del mensaje para el diseño de campañas virales online. Los objetivos específicos son cuatro. En primer lugar examinaremos cómo la credibilidad del autor, la credibilidad del medio, y las características del contenido (formato, existencia de personajes actuando, narrativa, y carga emocional) influyen en la credibilidad del mensaje. En segundo lugar examinaremos la relación directa entre la credibilidad del mensaje y la adopción del mismo. En tercer lugar, examinaremos el papel mediador que tienen las emociones que generan excitación, en la relación entre la credibilidad del mensaje y la adopción del mismo. En cuarto lugar, examinaremos el papel de moderador que tiene la controversia en la relación entre la credibilidad del mensaje y la adopción del mismo

Revisión bibliográfica

La tesis comienza con la revisión bibliográfica de las teorías sobre la adopción del mensaje (Chaiken, 1980; Sussman and Siegal, 2003; Rabjohn, Cheung and, Lee, 2008). Destacamos que tanto la credibilidad del autor, como la credibilidad del mensaje son factores que se consideran claves para la adopción del mensaje, siendo incluso más relevantes en internet. En segundo lugar, revisaremos las teorías de marketing viral (Godes and Mayzlin, 2004; Woerdl et al., 2008; Cruz and Fill, 2008; Saxena et al., 2012). Y en tercer lugar, mostraremos el proceso de viralización y así como las medidas de dicha viralización según Saxena et al. (2012)

Además, destacamos que el contenido del mensaje, las características de su difusión (el medio), y la credibilidad del autor, están identificados como algunos de los factores críticos para la adopción del mensaje y su aplicación en la viralidad, según Woerdl et al. (2008)

Revisaremos en profundidad los factores de que contribuyen a la credibilidad (autor, medio y mensaje) revisando los últimos autores (Sundar and Nass 2001; Metzger et al., 2003; Goldenberg et al., 2005; Lee, Kim, and Chan-Olmsted, 2011; Berger, 2013)

Además revisaremos los aspectos del contenido que según algunos investigadores son claves en la credibilidad del mensaje (Berger and Schwartz, 2011; Berger and Milkman 2012; Lundqvist, Liljander, Gummerus and van Riel, 2013; Berger, 2013; Shoeb and Khalid, 2014)

Dado que los estudios recientes se centran en la influencia de las emociones en la adopción del mensaje, y en la viralidad, analizaremos las emociones desde varios puntos de vista. Primero, revisaremos cómo surgen las emociones desde los estímulos recibidos. Después, analizaremos la bibliografía sobre el estudio de las emociones en el marketing, y nos centraremos en las emociones que generan activación. Y por último analizaremos cómo se han segmentado las emociones en las investigaciones más recientes.

Marco conceptual y modelo

En esta tesis propondremos un marco conceptual y un modelo para entender la adopción del mensaje. Este modelo muestra la influencia entre credibilidad del mensaje en la adopción del mismo. En segundo lugar, mostraremos en dicho modelo la influencia mediadora de las emociones que generan excitación en la relación entre la credibilidad del mensaje y la adopción del mismo. Como tercer punto, el modelo muestra el efecto moderador de la controversia en la relación entre la credibilidad del mensaje y la adopción del mismo.

Por último desarrollamos un marco conceptual que engloba al modelo propuesto, incorporando los factores que influyen altamente en la credibilidad del mensaje, tales como la credibilidad del autor, la credibilidad del medio y algunas características específicas del contenido (formato del mensaje, los testimoniales, la narrativa, y la carga emocional)

Metodología

Para lograr estos objetivos y poder contrastar las hipótesis, hemos analizado una campaña de marketing viral (basada principalmente en video) con 3.251 post y con seis millones de visualizaciones de video.

La campaña de marketing viral está estructurada en cuatro fases, con 17 mensajes lanzados, principalmente videos, en diferentes medios de internet, con un impacto más destacable en YouTube y en la web de la empresa que lanzó la campaña.

Como unidades de medida hemos utilizado los 17 mensajes lanzados en la campaña, y las 3,251 opiniones que la campaña generó en internet. Los medios analizados para identificar dichas opiniones fueron YouTube y la Web de la compañía que lanzó la campaña.

Hemos empleado variables observables (controversia y la adopción del mensaje), y variables inferidas a partir de la codificación. Para las variables inferidas hemos utilizado como método de codificación a un grupo de independiente de personas, siguiendo el método aplicado en investigaciones recientes de marketing viral (Berger and Schwartz, 2011; Berger and Milkman 2012; Berger, 2013). Conviene indicar que en la actualidad no existen herramientas automáticas que nos den más fiabilidad que esté método de análisis aplicado sobre los mensajes y las opiniones generadas en Internet (Thelwall, Buckley, Paltoglou Cai, and Kappa, 2010; Scharkow, 2013)

La escala de cada variable se diseñó conforme a la metodología de estudios precedentes (Laros and Steenkamp, 2005; Tronvoll, 2011 and Berger and Milkman, 2012).

Resultados

En primer lugar, nuestros resultados muestran que factores como la credibilidad del autor, la credibilidad del medio y la narrativa en el contenido del mensaje, influyen altamente en la credibilidad del mensaje de forma significativa. Por otro lado, los resultados también muestran que otras dimensiones del contenido como el formato del contenido (video/texto), los testimoniales, así como la carga emocional tienen una influencia significativa menor en la credibilidad del mensaje.

En segundo lugar los resultados muestran una relación directa entre la credibilidad del mensaje y la adopción del mismo.

En tercer lugar, en relación con las emociones que generan excitación, los resultados muestran que el contenido del mensaje que provoca emociones con alta activación genera un efecto mediador alto en la adopción del mensaje. La felicidad, el miedo, la ira, como emociones con alta excitación, tienen un efecto de mediación parcial sobre la relación entre la credibilidad del mensaje y la adopción del mensaje. Por otro lado, también se concluye que el contenido del mensaje que provoca bajas excitaciones no genera dicho efecto mediador. La tristeza como emoción de baja excitación no tiene un efecto mediador significativo en la relación entre la credibilidad del mensaje y la adopción del mensaje. Estos resultados obtenidos en el entorno de una campaña de

marketing viral en internet (principalmente basada en video) son consistentes con estudios anteriores (Berger and Schwartz, 2011; Berger and Milkman, 2012; Berger, 2013).

Por último, en el contexto de las campañas de marketing viral, observamos que la controversia es un factor moderador en la relación entre la credibilidad del mensaje y su adopción. Nuestros resultados muestran que una controversia baja modera altamente la relación entre la credibilidad del mensaje y su adopción. Además, en el contexto de marketing viral, nuestros resultados apuntan a que una controversia alta tiene efecto moderador inverso (es decir reduce) en la relación de la credibilidad y su adopción.

Conclusiones

La revolución digital supone una transformación de la comunicación y del marketing que conducen a un desarrollo del marketing viral. Los responsables de marketing necesitan entender cuáles son los factores críticos para diseñar una campaña viral efectiva. Nuestra investigación intenta facilitar un mayor entendimiento sobre cuáles son los factores críticos que influyen la adopción del mensaje y su aplicación en marketing viral.

Nuestros resultados obtenidos en el contexto del marketing viral en internet, confirman las conclusiones mostradas en la bibliografía sobre la adopción del mensaje, aportando alguna contribución efecto moderador de la controversia, y el efecto mediador de las emociones con activación.,

En primer lugar, confirmamos las conclusiones de estudios previos respecto a los factores que afectan a la credibilidad del mensaje, a través de nuestra investigación en el contexto de marketing viral online. Validamos, en este contexto, la influencia alta tanto de la credibilidad del autor como de la credibilidad del medio. Por otro lado, concluimos que la narrativa afecta altamente en la credibilidad del mensaje en el contexto de una campaña viral online basada en video. De acuerdo con la bibliografía revisada, la efectividad de la narrativa en el contenido, se debe a que provoca en el receptor del mensaje una razón para creer el mensaje y para compartirlo, dado que generará

comentarios entre los individuos. La puesta en común de estos mensajes que van a ser comentados, está motivada por la necesidad de reconocimiento social y reputación. (Yusufova, 2013). Por último confirmamos que el formato, los testimoniales, así como la carga emocional tienen una influencia directa significativa, aunque en el contexto del marketing viral esta influencia es baja.

En segundo lugar, en el contexto de las campañas virales en internet, confirmamos la relación directa entre la credibilidad del mensaje y la adopción del mismo. En tercer lugar, también confirmamos las conclusiones de los estudios recientes sobre el efecto que generan las emociones con alta activación en la relación entre la credibilidad del mensaje y su adopción. En la investigación en el contexto del marketing viral en internet, también observamos el efecto mediador de las emociones con alta activación. Las emociones que comportan mayor activación generan un efecto mayor que las emociones con sólo carga positiva o negativa. Las dichas emociones provocan activación y estimulan provocan acciones como la adopción del mensaje y su viralización. En nuestra investigación concluimos que las emociones con alta excitación median altamente en la relación entre la credibilidad del mensaje y la adopción del mismo. Estas conclusiones son coincidentes con las teorías anteriores demostradas en otros entornos. (Berger and Schwartz, 2011; Berger and Milkman, 2012; Berger, 2013)..

En cuarto lugar, deberíamos destacar que las personas están preocupadas de los que opinan terceros (Argo, White and Dahl, 2006). Todos tratamos de ser socialmente aceptados (Reiss, 2004). Por eso, tendemos a aceptar las opiniones de la mayoría evitando tener conflictos (Buss, 1990). En concreto, eludimos hablar de temas en los que estamos en contra de la opinión de la mayoría, y que nos puedan exponer al rechazo social. Es decir, las ideas aceptadas socialmente son las que se aceptan. Por dicho motivo, la controversia, cuando es elevada, podría generar una situación de malestar personal (Chen and Berger, 2013). Nuestra investigación confirma estas conclusiones en el contexto de una campaña de marketing viral. Los resultados obtenidos muestran que una controversia baja es un moderador con significación, en la relación entre la credibilidad del mensaje y su adopción. Por otro lado, concluimos que alto nivel de controversia tiene un efecto moderador negativo (es decir reduce) la relación entre la credibilidad del mensaje y su adopción, en el contexto de una campaña viral online.

Limitaciones

Nuestra investigación está basada en datos empíricos extraídos de una campaña real de marketing viral en internet. Se podría decir que el uso de una sola campaña resta representatividad al trabajo. Sin embargo, teniendo en cuenta el número de opiniones vertidas, al respecto, en internet (3.251 opiniones) y sobre todo el número de visualizaciones de todos los videos de la campaña (más de 6 millones) ofrecen en esta campaña un gran volumen de datos aptos para cotejar el el modelo propuesto.

Por otro lado, como método de codificación principal estamos utilizando un equipo de codificadores, por lo que es un procedimiento principalmente manual. Se podría indicar que dicho método no es robusto. Sin embargo, hemos seguido el método que utilizan otros autores para la codificación de los mensajes asociados al marketing viral (Berger and Milkman 2012, Chen and Berger, 2013, Berger, 2013) y además otros autores califican este método de codificación manual como más fiable que las herramientas automáticas actuales (Thelwall, et al. , 2010; Scharrow , 2013)

Futuras líneas de investigación, implicaciones futuras e implicaciones en el marketing

En primer lugar recomendamos el desarrollar una investigación en condiciones controladas sobre la influencia de los factores identificados en la adopción del mensaje. También sería complementario a nuestra investigación realizar la misma investigación en otros contextos de marketing viral (con otro tipo de campañas). Otras líneas de investigación futuras podrían explorar los factores críticos en la adopción del mensaje identificados en esta investigación y su aplicación en el contexto móvil del marketing viral. Además nuestra recomendación sería analizar el efecto moderador de la controversia para determinar su valor. Proponemos analizar otros factores críticos en la adopción del mensaje, como son la estrategia de medios online y offline, la forma de expandir el mensaje,

Además mencionamos como futuras implicaciones asociadas a esta investigación, la explosión de las soluciones de Big Data y de las herramientas de Sentimental Analysis. Estas herramientas nos permitirán disponer de una información más fiable y de un mayor entendimiento tanto de los mensajes lanzados en la campaña, como de su efecto en las opiniones de los receptores en internet.

Desde el punto de vista de las implicaciones de marketing, nuestra investigación facilita el conocimiento de algunos factores críticos de cara a diseñar una campaña viral online efectiva. Esta tesis define un marco conceptual y un modelo integral cubriendo todos los aspectos de la comunicación, autor, medio, mensaje y receptor. De esta forma estos resultados y el modelo propuesto ayudarían a los responsables de marketing a definir mejor su estrategia de marketing viral online, de cara a maximizar sus resultados

PALABRAS CLAVES

Marketing viral, credibilidad, emociones, controversia, adopción del mensaje

1 Chapter 1. INTRODUCTION

Sharing information is part of modern life. People love sharing videos, photos, opinions. We are constantly sending and receiving information either in our PC or in our smart phone. This social transmission often comes in a form of electronic word of mouth (eWOM) that provides Marketing a new communication opportunity to interact with the target audience in an easy and cost effective way. This eWOM generate a virality effect that could be used as a marketing tool. Viral marketing is a hot topic in the agenda of the marketer (Cruz and Fill, 2008)

Although decades of research suggest that interpersonal communication changes our behaviour, there is no agreed conclusion about why and what certain messages have more influence than others. Marketers find it difficult, if not impossible, to predict viral success (Watts, Peretti and Frumin, 2007). The main question scholars and marketers are facing is: what are the key factors to consider when designing a viral marketing campaign to success? Previous work have studied some of these factors independently but to the best of our knowledge there is no research to date that analyzes them

The main goal of our research is to shed light and deeply understand what the critical factors are for an effective viral marketing campaign. We provide a conceptual framework and we propose a model for message adoption.

Our specific objectives are.

- First, to examine how the author credibility, media credibility and the content characteristics (format, testimonial, storytelling and emotional charge) directly influence to the message credibility.
- Second, to analyze the influence of message credibility on message adoption.
- Third, to examine mediating role of arousal emotions on the relationship between message credibility and message adoption,

- Fourth, to observe the moderating exerted by controversy on the relationship between message credibility and message adoption. We examine message adoption taking into account one of its effects: virality.

To achieve these objectives and to test the conceptual framework as well as the proposed model, we analyzed a real online viral marketing campaign, released in 2011, with 3,251 electronic word of mouth messages and over 6 million video visualizations. We used YouTube and the company's web site as the two main media to gather the electronic word of mouth.

Since previous research on viral marketing has only partially analyzed this communication process, our research provides a complete analysis of its critical factors. We both show some critical factors with significantly influence to the message adoption and shed light in order to understand the size of their effect.

This research is structured as follows: it begins with a literature review in chapter two. In chapter three, we develop our conceptual framework, the proposed model and the hypotheses. In chapter four, we outline the research methodology. In chapter five, the results of our research are established. And in chapter six, we show the conclusions (findings, discussion, theoretical contributions, managerial implications, limitation and direction for future research).

In the next chapter, we provide a deep review of literature showing that there is limited understanding of message adoption and virality. Additionally, current studies are limited to a set of factors, without considering the communication process as a whole. Some authors examine the source of credibility (Sussman and Siegal 2004). Other authors show conclusions of valence (Eckler and Bolls, 2011), Some research looks into emotions (Berger, 2013, Berger and Milkman, 2012), and others focus on controversy (Chen and Berger, 2013).

2 Chapter 2. Literature Review

In this chapter, we will review the literature in order to provide a better understanding of the critical factors that contribute to make a viral marketing campaign be effective. The purpose of Chapter 2 is to review the literature on message adoption and, more precisely, on one of its effects, virality. We focus our review in understanding recent literature about viral marketing and the factors that highly influence virality.

First, in Section one, we begin reviewing the viral marketing concept and the electronic word of mouth together with communication theories. Section two provides an extensive review of the information adoption model, underlining some literature review of the critical factors of virality. In Section three, we deeply review studies on author, media and message credibility. At this stage, a conceptualization of communication factors has already been identified. In Section four, the literature review focuses on content dimensions, with an emphasis on video content.

In section five, the emotion study is taken into consideration. This section concludes reviewing the cluster of emotions and arousal theories so as to understand the information adoption and activation. In section six, we underline controversy theories on the virality effect.

2.1. *Communication Process and Viral Marketing*

2.1.1 **Communication Process**

Understanding the communication process provides a framework to review the factors that influence the effectiveness of a marketing campaign. As Laswell (1948) has defined, in the act of communication the communication process should answer the following questions:

- Who?: Author
- Says What?: Content
- In Which Channel?: Media
- To Whom?: Audience
- With What Effect?: Impact

Although Lasswell (1948) defined the communication scheme, his study did not provide any interactions among the parties. Meanwhile, Hovland, Janis, and Kelle (1953) thoroughly defined the communication process including six different phases: The response (change of behaviour) is a causal process based on the stimulus; the exposure to a message (emitter Act); and requires aroused attention (to arrive), be understood (reach), be accepted (acting), be retained (to stay). Additionally, Berlo (1960) pointed out his theoretical model on the psychological issues encompassing the communication process. Berlo introduces the 'SMCR' model in which he considered the following elements of the communication process: Source, Message, Channel, and Receiver.

In our literature review, we are going to highlight the interaction the elements of communication, author, content, media and the receiver for the message adoption, in a viral marketing context.

2.1.2 Viral Marketing definition

First, we review recent studies to understand viral marketing concept. Up to date, many definitions of viral marketing have been provided. Viral marketing is defined as the internet version of the word of mouth marketing, using Web sites, videos, email messages, or other marketing events that influence customers to pass them along to friends(Armstrong and Kotler's ,2011). Viral marketing means also a tactic that marketers apply to spread a marketing messages across a market or segment in a limited time period, utilizing marketer-initiated consumer activity (Gardner et al., 2013).

To point out a simple definition, Shoeb and Khalid (2014) defined viral marketing as an evolution of word of mouth in the digital work, naming electronic word of mouth (eWOM). Therefore, in order to understand viral marketing, we should first study the word of mouth.

Word of mouth implies that informal communication among individuals concerning products and services is taking place (Bayus, 1985). This communication can be positive as well as negative, depending on the satisfaction levels of individuals (Evans et al., 2006). In comparison to other forms of marketing communication, information

dissemination and sharing among individuals is rapid when word of mouth occurs. The beliefs and point of views of individuals are significantly influenced by negative word of mouth communication, which tends to be weighted more heavily by consumers than positive communication (Solomon, 2004).

According to the Word of Mouth Marketing Association (WOMMA), viral marketing is the science to build a beneficial and active marketing message communication among customers by giving people a reason to talk about your product or service

The difference between WOM and e-WOM is the platform on which the message is contained which enables it to travel fast and reach farther (Shoeb and Khalid, 2014). Besides the amplified reach, the richness of the content has evolved as well, in the sense that the message can now be in various forms including text, images, sounds, videos, games, eBooks, brand able software, images, email messages, or web pages (Shoeb, 2014).

Generally speaking, viral refers to the tendency of content to spread quickly in a community by word of mouth (Guerini, Strapparava and Özbal, 2011). Therefore, viral marketing implies peer-to-peer communication with effective methods to transmute electronic communication network into influence networks capturing receiver's attention, triggering interest, and leading to adoption (De Bruyn, 2004; Dobeles et al., 2007).

In the spreading process, there are several elements at play, e.g. the nature of the spreader and the nature of the audience, the structure of the network through which the information spreads, and the nature of the content itself (Guerini, Strapparava and Özbal, 2011). Therefore, the spreading process has many different elements to be considered, and furthermore there is interrelationship among them. The spreader decide the the network through which the information is spread. The content delivered predetermines the network to be spread out (video are delivered over video platforms mostly).

It is still difficult to identify sizeable evidence to explain why and how this spreading process works (De Bruyn, 2004; Dobeles et al., 2007). Eckler and Bolls, (2011) stress that the message no longer has to be a result of an experience between a consumer and a brand, intense enough to motivate the consumer to spread the message. There are other conditions that affect to the consumer to spread the message. If a message is self-relevant or interests enough to provide the consumer a social recognition or reputation, this message is prone to be viral. Therefore a much more superficial experience, and not necessarily related to the brand, is enough to motivate the consumer to pass the message along (Eckler and Bolls, 2011; Brown, Bhadury and Pope, 2010).

The viral marketing typology differentiates between social interaction, unintentional and commercial viral marketing (Shoeb and Khalid, 2014). The first is done by a communication among persons, the second form of communication implies the inclusion of some kind of product without being properly seeded by the sender, and the third one occurs when a firm launches a campaign.

Whenever we are naming viral marketing, we are referring to commercial viral marketing, and thus we are using such viral marketing term as a promotion method. This promotion method was understood to be viral in character as the message was passed on by users themselves. Cruz and Fill (2008) claimed that viral marketing communication implies the peer-to-peer electronic exchange of product/service information. The aim of viral marketing is to use consumer-to-consumer (or peer-to-peer) communications, as opposed to company-to consumer communications, disseminating information about a product or service, hence leading to its rapid and cost-effective market adoption (De Bruyn and Lilien, 2004). Moreover, Wilson (2000) expanded this definition by stating that viral marketing encourage individuals to pass on marketing message to others. That process creates a potential and exponential growth in the influence of the message. Furthermore, Watts et al. (2007) introduced the big-seed as a combination of old-fashioned mass media with viral marketing in order to provide a more predictable results.. On the contrary, Phelps et al. (2004) alienate viral marketing from advertising by defining viral marketing as the process of honest communication among customers

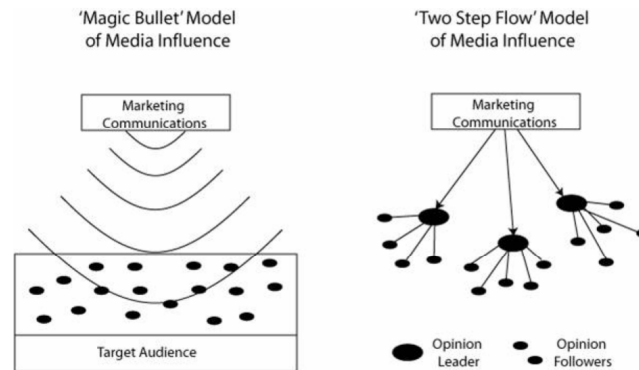
We examine the electronic word of mouth communication (eWOM) as it is a far more effective, penetrating and faster medium compared to the traditional word of mouth communication (Helm, 2000). While conventional communication in marketing directly addresses the consumer, viral marketing communication aims to create an environment where customers and consumers transmit messages without the involvement of the original source (Shoeb, 2014). Kirby and Marsden (2006) represent the difference between traditional marketing and interactive marketing as depicted in Figure 1.

In this Figure, we could distinguish between two models: the traditional marketing communication processes in which the Marketing broadcast its marketing message to the target audience directly using several media, and the new marketing communication that make the most of the network communication.

In the first model, the Magic Bullet Model of Media Influence the company broadcast the marketing message to the target audience using the media. Therefore the media is critical as the media impacts the target audience

In the second model, Kirby and Marsden (2006) show the new marketing communication that make the most of the network, and it use the two steps flow model of media influence. In the first step marketing communication deliver the marketing message to the opinion leaders, or hubs to deliver his marketing message. These hubs are used by the Company as the media that seed the marketing message to the target audience. That is the reason why these hubs are also named as seeding users. This hubs or seeding users are the one that communicate the marketing message to his/her audience. These audiences are in the network of the seeding user. This network could be Facebook, YouTube, or any other social network by which the seeding user is able to spread the marketing message. The viral marketing is being represented in this two steps model, as it used this seeding users are the one that spread out the marketing messages. Whenever this marketing message is spread out along the end user network then it is considered to be viral.

Figure 1: Relationship between traditional marketing and interactive marketing. Kirby and Marsden (2006)



Viral marketing defines a new paradigm of marketing. This paradigm change the communication process from a traditional way, where the company deliver the marketing message directly to the audience, to new communication process where the company influence a number of actors –opinion leaders–, who are really those who will influence the market through your social networks (Kirby and Marsden, 2006).

Viral marketing use networks, social networks to spread out the marketing message is spread out a. Throughout this communication process, people give his opinion about the marketing message. Thus, when we received the message, it came together with a social opinion about it (number of likes, number of visualization). That mix affects our perception of the message, and therefore our behaviour against it. Viral marketing impacts consumer behavior by influencing consumer's perceptions, attitudes and point of views. Thus, viral marketing has the potential to emerge as a key element of a company's promotional mix (Kirby and Marsden, 2006).

2.2. *Message Adoption*

In this section, we will explain the message adoption by using the message adoption theories in the literature.

Adoption theories describe the processes people undergo when deciding to perform an activity for the first time, as distinguished from ongoing usage behavior (Sussman and

Siegal, 2003). This new activity could be to purchase, to spread the message out, to give feedback (either positive or negative) or to comment on it. On the other hand, Cheung, Lee and Rabjohn (2008) defined message adoption as the acceptance of information as being true, either consciously or subconsciously and applying that information to an online purchase decision.

As Sussman and Siegal (2003) state one of message adoption consequence is to spread out the message, a critical action for an effective viral marketing campaign. Considering viral marketing is critical to understand what message adoption behaviour of the receiver of the message is, in order to guarantee the progress of the message at exponential rate.

We will review the message adoption theories in order to identify which are the critical factors that influence the message adoption and therefore influence of the potential effectiveness of a viral marketing campaign

2.2.1 Message adoption theories

Sussman and Siegal (2003) made contributions to the factors that determine the information or the message adoption by the receiver. In their work, the authors observed the major factors associated with the adoption of the message: Argument Quality (Content factor) and Source Credibility (either author or media source). These two factors influence the information usefulness which it influences directly to message adoption. These relationships are explained in the following model:

Figure 2: Model on the information adoption. Sussman and Siegal (2003)

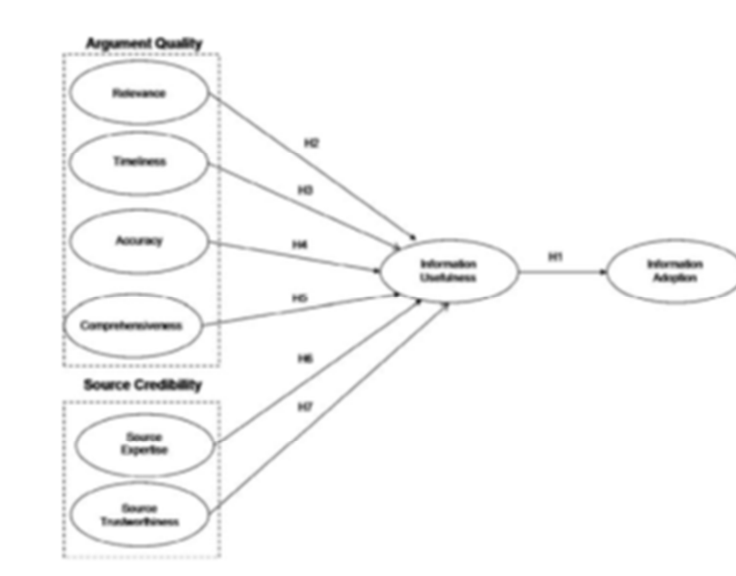


As Sussman and Siegal (2003) conclude message adoption is positively influenced by the usefulness of the information posted by the opinions. Information usefulness is influenced by two previous variables:-quality of the argument and credibility of the source.

Rabjohn, Cheung and Lee (2008) investigated which are the factors affecting the information adoption, further developing Sussman and Siegal (2003) model. Rabjohn et al. (2008) explained in more detail the quality of the argument. These authors defined a more comprehensive model and extended key variables associated to the quality of the argumentation and the credibility of the message's source.

Rabjohn et al. (2008) stated that the quality of the argument refers to the persuasive strength of arguments in the message. They show that source credibility and the four dimensions of information quality (relevance, timeliness, accuracy and comprehensiveness) explained 65% of the variance for information usefulness. Their main findings were that the comprehensiveness and relevance of the argument have a significant impact on the information usefulness. Comprehensiveness has a stronger impact than relevance. Furthermore, they stated that information usefulness has a significant and positive impact on message adoption.

Figure 3: Information adoption model. Rabjohn et al. (2008)



On the other hand, source credibility, timeliness and accuracy have no significant impact on information usefulness; nevertheless source credibility has impact on information adoption.

2.2.2 Message adoption processing models

To understand the way the receiver adopts the message in the internet environment, we review the heuristic-systematic model (Chaiken, 1980), the elaboration likelihood model (Petty, Cacioppo and Goldman, 1981) and some recent studies that merge both theories (Fritch and Cromwell, 2001).

The elaboration likelihood model defines two major routes: the central route and the peripheral one. In the central route, people carefully and thoughtfully consider the true merit of information to support their decision-making process. Central route is a rational process evaluating the information. Meanwhile, in the peripheral route, the heuristic-systematic model, perception is the driver in the decision-making process. The receiver of the message is more likely to rely on general impressions. This perception is associated with the credibility of the author and media (of the sources), the content characteristic (format, testimonials, emotional charge,...) and the message credibility.

Central route has some limitations as persons have computational limitations, perform errors, apply wrong norm or use a different construal (Stanovich and West ,2000). Peripheral route is more frequently used when motivation or capacity for effortful processing is low, or when time does not permit extensive information processing (Ratneshwar and Chaiken, 1991).

In the internet environment, when time is limit and people are impacted by massive of information the receiver develops mostly an own attitude invoking heuristic process. This heuristic process reinforces the important of the concepts such us; experts can be trusted (therefore credibility of the author is key), or the majority opinion is correct

(endorsement of the message, the media, controversy), or long messages are valid messages (length of the content) (Chaiken and Maheswaran, 1994).

Chaiken and Maheswaran (1994) stated that the heuristic and the systematic processing are linked, due to the fact that heuristic processing produces inferences in the validity of the message by the receiver, and therefore receivers perceive the message content stronger and more positively if a message is delivered by an expert (either by an expert author or a credible media).

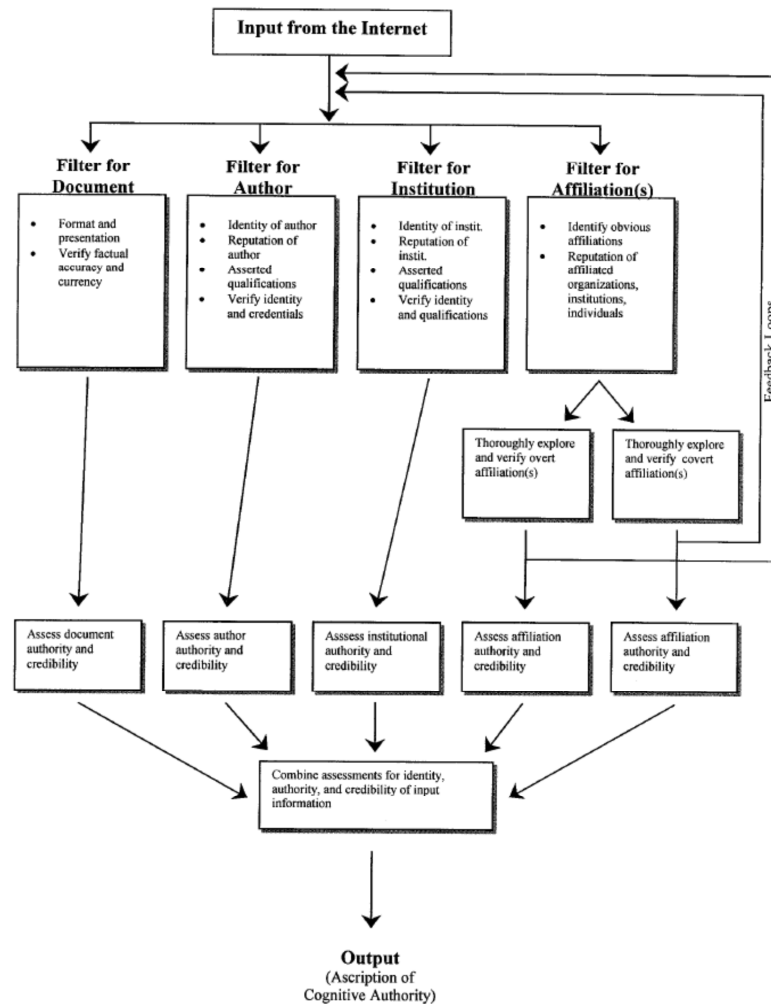
Fritch and Cromwell (2001) provided the following model for internet adoption model, where the main factors, content, author and media are considered. These authors show three steps for processing a message received in Internet context: filtering of the filter, assess credibility and the output (perception). First in Internet, the receiver filter by content, author, media, then assess credibility of these factor and finally combine to the credibility of the three aspects.

First step, the receiver filter the document verifying in a careful and systematic process the content (filter the document). Furthermore it filters the author (find out the credibility, reputation,) and the media (find out the credibility and reputation) and to end up it filter by the affiliation.

Second step the receiver assess credibility of each factor (content, author, media, affiliation) by assigning the level of credibility to each one. Finally these authors showed how the receiver combines the assessment of the different factors to build the influence on his output (the message adoption)

Fritch and Cromwell (2001) combine the systematic process with the heuristic process to set up his information adoption proposal as represented in the following figure

Figure 4: Model internet information adoption. Fritch and Cromwell (2001)



For an internet context, Fritch and Cromwell (2001) combines the assessment of content that is systematic processing with heuristic processing (author and media assessment) to set up the message adoption.

Message adoption, in internet context, will be a combination of the two processes systematic and heuristic (perception about credibility of author and media), or even how the content is perceived, should be considered as a critical factor in the message adoption process, rather than the information itself.

2.2.3 Message adoption, virality and its measurement

Message adoption is observed throughout several results. One of them is the virality.

We are going to review how the recent studies measure the virality, in order to understand how to measure the level of message adoption

As stated in the previous paragraph, viral refers to the tendency of contents spreading quickly in a community through word of mouth (De Bruyn and Lilien, 2004; Guerini, Strapparava and Özbal, 2011). In internet, this message transmission is known as electronic word of mouth (Shoeb and Khalid, 2014). The quicker the electronic word of mouth is spread the more viral (De Bruyn, 2004; Dobeles et al., 2007).

We review studies that focus on electronic word of mouth and virality to understand one of the message adoption effects. Moreover, we review studies explaining how to measure electronic word of mouth and virality. Therefore, by means of this literature review, we will understand how to measure virality, one of the message adoption effects.

The first and most obvious dimension of electronic word of mouth (eWOM) founded in our literature review is its volume: how much eWOM is there? This is essentially what has been stressed by Bowman and Narayandas (2001), Reingen and Kernan (1986), Richins (1983), Anderson (1998) and Godes and Mayzlin (2004).

Following our review, Cruz and Fill (2008) proposed a framework which started defining a viral marketing campaign's goal as being either cognitive (reach, awareness, knowledge), behavioral (hits, downloads, dissemination rate) or financial (ROI brand equity developments as a result of the campaign). Following this research, Saxena et al. (2012) have identified few measureable factors that allow measuring the message adoption:

1. Appreciation factor (A): $A = NL$ (1) Where NL is the number of "likes" received by an information item.

2. **Comment rate (Cr):** defines the tendency of an information item to draw comments.

$$Cr = \Sigma (\text{Rating given by individual users}) / \text{Total number of ratings.}$$
Rate means the overall average rating given by viewers
3. **View Count (Vc):** View count is the number of times a particular information item has been accessed. Therefore, we can say that view count is easily measureable and the spinal factor of virality.

$$Vc = NV \quad (4)$$
4. **Controversy (Co).** The higher the degree of controversiality, the greater the probability of it getting viral, using the following formula:

$$Co = 1 - \{(\max(\text{likes, dislikes}) - \min(\text{likes, dislikes})) / (\text{Total number of likes} + \text{Total number of dislikes})\}$$
5. **Share count (Sc):** Share count is the measure of number of times a particular information item is shared over an online social network.
6. **Star Rate (Sr):** Star rate is calculated in the following equation:
 - a. $Sr = \Sigma (\text{Rating given by individual users}) / \text{Total number of ratings}$

As pointed out, Saxena et al. (2012) observed that from all these factors, only five of them are directly proportional to social network factor. The rest of the factors are not specific to social network. For simple representation, Saxena et al. (2012) stated the Social Network Factor (SNF) as follows:

$$SNF = \text{Appreciation} + \text{Controversy} + \text{Comment rate} + \text{Start rate}$$

Saxena et al. (2012) define the virality index as the following formula:

- $V = \ln ((Y * VR) / Y0 * SNF)$

Where Y means the total number of views with respect to a reference date, and VR the number of views on a particular date/ total number of view as on the reference day, and YO the initial number of view and the t the time period

Other authors states that the View Count should be considered as a virality factor (Cruz and Fill, 2008; Bowman and Narayandas, 2001; Reingen and Kernan, 1986; Richins, 1983; Anderson, 1998; Godes and Mayzlin, 2004)

2.2.4 Critical factors for viral marketing

The success of viral marketing relies on spreading out the campaign message as much as possible (De Bruyn and Lilien, 2004). According to Woerdl et al. (2008) studies, there are five types of viral marketing factors that critically influence the success of viral marketing campaigns:

1. Structure of the campaign
2. Characteristics of the product or service
3. Message content
4. Characteristics of the diffusion
5. Peer-to-peer information conduit

Content is a critical factor of viral marketing success. Messages that foster imagination and provide entertainment to the receiver, or even intrigue the receiver, are more likely to be sent voluntarily. Overall, a message should be actively engaging the receiver so that he or she becomes a transmitter (Woerdl et al., 2008).

Another critical factor is related to the characteristics of diffusion. Diffusion refers to the media being used in the campaign (YouTube, Web sites, emailing) (Woerdl et al., 2008).

Finally, the influence that source credibility exerts on virality as a critical factor should be underlined (Woerdl et al., 2008). This fact will be discussed in detail later in this chapter.

We are going to outline the conclusions as stated in the literature, considering the three main components in the communication process: author, media and content.

2.2.5 Literature review on message adoption

The following are the key elements in the message adoption literature examined in this chapter:

Table 1. Message Adoption literature review

Author	Journal	Title	Conclusions
Chaiken (1980)	Journal of Personality and Social Psychology	Heuristic versus systematic information processing and the use of source versus message cues in persuasion	Support was also obtained for the hypothesis that content- vs source-mediated opinion change would result in greater persistence
Chaiken and Maheswaran (1994)	Journal of Personality and Social Psychology, 66:3, 460-473.	Heuristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task importance on attitude judgment.	Heuristic processing was thus the prime determinant of persuasion when subjects lacked motivation for systematic processing. In this situation subjects had invoked that heuristic process perceiving that credible communicators' assertions are valid. Yet source credibility affected persuasion partly through its impact on the valence of systematic processing, confirming that heuristic processing can bias systematic processing when evidence is ambiguous
Sussman and Siegal (2003)	Information Systems Research	Informational influence in organizations: An integrated approach of knowledge Adoption	Their findings shows and indication that central processors were using source credibility as an additional argument for usefulness and therefore for information adoption. Nevertheless, they claim that further research is needed to examine the impact of source credibility under different elaboration conditions in the information adoption process.
Rabjohn, Cheung and Lee (2008)	Proceedings of the 41st Hawaii International Conference on System Sciences - 2008	Examining the Perceived Credibility of Online Opinions :Information Adoption in the Online Environment	Information adoption within online communities is highly affected by the influencing role of information usefulness. Research shows that source credibility and the four dimensions of information quality (relevance, timeliness, accuracy and comprehensiveness) explained 65% of the variance for information usefulness. And Relevance and comprehensiveness have significant impact on perceived information usefulness

Source. Compiled by author review

2.3. Credibility

Credibility of the Source influences the information adoption (Sussman and Siegal, 2003). Fogg and Tseng's (1999) state that credibility is like beauty, it exists only in the eye of the beholder when you make an evaluation of a person, object, or piece of information.

In this section, we will review the literature on source credibility covering the medium and the author as source components (Sundar and Nass, 2001). We will also review the literature about message credibility as part of the communication process.

2.3.1 Source credibility

In the adoption model literature, the source could be applied to the author, and the media, and to the message itself. Therefore, credibility has been discussed in the three perspectives of communication: author credibility, media credibility, and message credibility (Metzger et al., 2003).

Media credibility means the credibility of the source where the message is published. In internet that refers to Brand sites (Web), e-retailers, and non-marketer-driven mediums such as third-party webs and personal blogs (Lee et al., 2011)

The assessment of credibility in the online environment is often much more complex than in offline ad contexts, due to multiple online sources that disseminate the content (Sunder and Nass, 2001).

We could consider the communication process using the source types established by Sunder and Nass (2001).

Figure 5: Source Type. Sundar and Nass (2001)

Sender/Presenter —> Medium/Channel —> Receiver/Audience

In the communication process, the journalism gatekeeper acts as a filter of the news to be published. In Internet environment, the receiver considers journalism gatekeepers to be the media, as the source. In internet media, where the environment allows particular users to share their own content through different sharing platforms, human sources (authors) are also considered to be the source. In internet, Metzger (2007) stated how important the credibility assessment is since in general terms, there is no gatekeeper who guarantees the trustfulness of the content, and all content is seen at the same level.

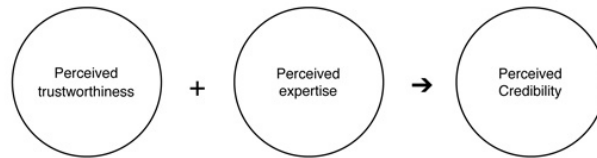
First, author credibility research usually focuses on the characteristics of the source, such as the speaker, the organization, or the news organization (Metzger et al., 2003).

Second, research on media credibility focuses on the medium through which the message is delivered (for example, newspaper compared to television). Media credibility is the perceived level of credibility that individual users have of a specific medium, such as newspapers, television, Internet Web pages, or blogs (Newhagen and Nass, 1989; Sundar and Nass, 2001; Metzger et al., 2003).

Third, Message Credibility is the perceived credibility of the communicated message itself, such as informational quality, accuracy, or currency (Metzger et al., 2003).

Fogg (2003) states that trustworthiness and expertise are factors for both the author and the media perceived credibility.

Figure 6: Credibility evaluation factors. Fogg (2003)



2.3.2 Author credibility

Thorson and Rogers (2006) suggest that the level of influence on message credibility is not only related to the content of the message, but also to the credibility of the message's transmitter himself/herself.

The author bases his/her credibility on the expertise and trustworthiness dimensions (Sundar and Nass, 2001).

Information from a credible author can influence others' opinions, attitudes, and/or behavior through a process known as internalization. The receiver learns and adopts the opinion of a credible spokesperson, because he believes information from this person represents an accurate position on the issue. MacKenzie and Lutz (1989) and MacKenzie, Lutz, and Belch (1986) developed a model to identify antecedents in the attitude toward the ad. MacKenzie et al. (1989) stated that the advertiser's credibility, acting as an author of communication, had a strong positive relationship with the attitude toward the ad.

The influence of an author's credibility is based on the heuristic-systematic model of peripheral processing of message adoption, as previously stated (Chaiken, 1980; Chaiken and Maheswaran 1994; Fritch and Cromwell, 2001). This peripheral message adoption process means that without analyzing thoughtfully the content of the message, due to the author's credibility, we are more prompt to perceive the message as credible and adopt the message. This adoption process mainly takes place on the internet environment (Ratneshwar and Chaiken, 1991)

In internet, third party experiences influence the message adoption and therefore influence any service purchasing decision (Huang, Hsia, Chen, 2012). This influence

will be higher if the author's credibility is higher (Berger, 2013). The more positive rating the author has on internet (such as more google hits), the higher the credibility of the author and the higher his influence on the message adoption (Berger, 2013).

In addition to previous revelations regarding the author's credibility, the following are credibility factors for the author's credibility, as stated by Goldenberg, Han, Lehmann and Hong (2009):

1. Influential: They are convincing (maybe even charismatic)
2. Expertise: Authors that know a lot (e.g., experts). Understanding product advantages and/or technical details is often important to people seeking advice from opinion leaders
3. Social ties: Authors with a large number of social ties (e.g., they know a lot of people). People, known as connectors, have a lot of influence around their personal environment not because of their expertise, but because of their links with other people (Brown and Reingen, 1987).

Specifically talking about social ties and interactivity, Yang and Lim (2009) noted that individual users tend to trust organizations, perceived with a greater level of interactivity in social media; credibility of social media is critical in enhancing such interactivity. Goldenberg et al. (2005) also stated the concept of social hub as the one offering the greater exposure to their ideas due to the numbers of ties (connections).

2.3.3 Media credibility

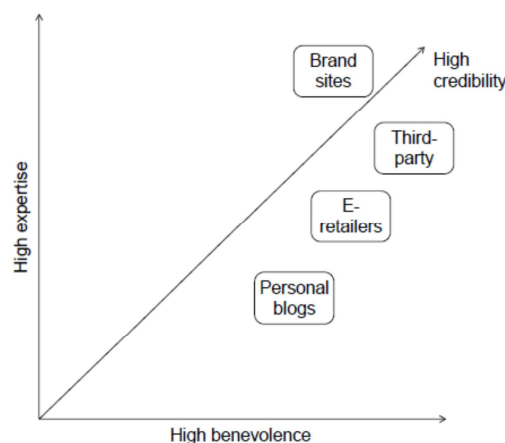
Metzger et al. (2003) stated that the credibility of media (channel/medium of communication) influences the selective involvement of the audience with the medium. Media credibility is linked to the medium's corporate credibility. Newell and Goldsmith (2001) define corporate credibility as the perceived expertise, reliability, trustworthiness and truthfulness of a company. First, expertise generally refers to a source's knowledge and ability to provide accurate information. Meanwhile, trustworthiness is related to a source's motivation to provide truth (Cacioppo et al., 1986).

In particular, in the internet environment, Metzger (2007) pointed out that media credibility (online media) is influenced by factors such as the following:

- The accuracy of content published in the Web site
- The authority of authors used by the Web site
- Objectivity means how factual the information published in the web site is
- Currency means whether the information is up to date
- The own reputation of the Web site as a prestigious organization

Specifically, we review the different level of credibility on the internet media. Lee, Kim, and Chan-Olmsted (2011) considered four types of online media: Brand sites (Web), e-retailers, and third-party webs and personal blogs. Lee et al. (2011) found that official brand and third-party web sites are considered to have more credibility, while e-retailers and personal blogs are perceived to have less credibility, based on their expertise and benevolence attributes.

Figure 7: Online media credibility evaluation Lee et al. (2011)



2.3.4 Credibility Literature review

These are the key credibility literature features explored in this chapter:

Table 2. Credibility Literature

Autor	Journal	Title	Conclusions
Fogg et al. (2001)	Persuasive Technology Lab Stanford University	What Makes Web Sites Credible? A Report on a Large Quantitative Study	Expertise is a key component in credibility, and the data in this study support the idea that Web sites which convey expertise can gain credibility in users' eyes.
Metzger et al. (2003)	Communications Yearbook, 27, 293–335. Mahwah, NJ: Lawrence Erlbaum Association.	Credibility for the 21st century: Integrating perspectives on source, message, and media credibility in the contemporary media environment.	Credibility has been discussed in the three perspectives of communication: media credibility, message/content credibility, and source credibility
Thorson and Rogers (2006)	Journal of Interactive Advertising,	Relationships between blogs as eWOM and interactivity, perceived interactivity, and parasocial interaction	These authors suggest that the level of influence is not only related to the content of the message of the eWOM, if not also the credibility of the own transmitter from the eWOM.
Goldenberg et al. (2009)	Journal of Marketing	The Role of Hubs in the Adoption Process	Their research shows how influential people are believed due to three important traits: (1) They are convincing (maybe even charismatic), (2) they know a lot (i.e., are experts), and (3) they have a large number of social ties (i.e., they know a lot of people).
Lee, Kim & Chan-Olmsted (2011)	Journal of Marketing Communications,	Branded product information search on the Web: The role of brand trust and credibility of online information sources.17(5), 355-374.	Research states that that official brand and third-party web sites are considered to have more credibility, while e-retailers and personal blogs are perceived to have less credibility, based on their expertise and benevolence attributes

Source. Compiled by author review

2.4. ***Content dimensions***

Message credibility is influenced by content dimensions (Holbrook and Batra, 1987; Woerdl, 2008), as we explain in this review section. We analyze all different content dimensions underlined in literature: testimonial, storytelling, format, length, and emotional charge.

Holbrook and Batra (1987) concluded that an ad's content could have six dimensions:

1. Emotional: A content trying to create mood with a high burden of emotional/rational features.
2. Threatening: a content trying to arouse fear, anxiety using strong/weak fear appeals, or invoking safety themes.
3. Mundane: With a burden of dullness or entertainment
4. Sexy: fantasies, evocating dreams.
5. Cerebral: with a high burden of sensory appeals for the brand or company image.
6. Personal: with product claims, perceived as self-relevant or containing significant information for an individual's interests focusing on the product rather than the brand itself.

We also identify types of content which increase the likelihood of a marketing communications message going viral: entertainment, positive messages and interactive content (Shoeb and Khalid, 2014).

The content factor is mainly explained by the importance of the receptor implications. Information adoption of the content and therefore the activation (forwarding the message) is completely voluntary and nobody rewards people to spread out any message.

The engagement factor of the content as a driver to be shared (Woerdl, 2008) has been deeply explained by several recent studies:

1. A viral marketing campaign content that creates emotions is more likely to be shared (Shoeb and Khalid, 2014). More than emotions, Berger (2013)

emphasizes that mainly the arousal emotions, either positive or negative, activate the receiver (to spread out the content)

2. Viral marketing contents providing a social factor to the receiver are more suitable to be spread out. First, this social factor means how well the marketing content allows the audience to connect to one another (Shoeb and Khalid, 2014). Second, this social factor also means social currency; how people are likely to share information that makes them look good to others (Berger, 2013). Third, this social factor also means a reward to receivers to spread out the message, making use of the WOM factor by giving them further credit among the audience (Shoeb and Khalid, 2014). Fourth, receiver motivation to share content is based on self-actualization, self-expression and social recognition or reputation as well as earning social currency through viral sharing (Yusufova, 2013).
3. A viral marketing content which offers the receiver a practical value will be more suitable to be shared. Those practical values mean that receivers will consider useful contents to be shared, with the desire to help others, and also to boost their social currency (Berger, 2013).
4. A viral marketing content that shows a credible story will be more likely to be shared. Therefore, the importance, vividness and effectiveness of storytelling give the receptor a reason to share since that starts a discussion among individuals (Berger, 2013; Lundqvist, Liljander, Gummerus and van Riel, 2013).
5. A viral marketing content that raises the audience's interest is prone to be shared (Shoeb and Khalid, 2014). Even fun, imagination and intrigue are also drivers for content to be shared (Woerdl, 2008).

Additionally, in relation to the new tendency in content format –video–, we could stress the fact that video is a type of content that so far has not been exhaustively considered in literature. Lin, Tom M. Y; Lu, Kuan-yi; Wu, Jia-jhou, (2012) stated that visual messages generate greater interest, adoption and therefore activation than text messages.

Besides, we should take into account that the receptor forwards a message due to reasons evoked by video contents (Ho and Dempsey, 2010). We could consider two types of videos: videos made and uploaded by users, and videos made by media companies, such as advertisement agencies (Cha, 2014). Regarding video contents, we should consider the complex interplay between social networking platforms and the role of emotions in viral videos (Goswami and Bhutani, 2014).

Furthermore, Goswami and Bhutani concluded that analyzing an effective video content strategy (platform and video content) will show a deeper understanding of what leads to a viral video being spread on internet. Indeed, there are four major elements for a video to go viral (Voltz and Fritx, 2013):

1. Be true: Be authentic, showing a real situation.
2. Duration of the video (long or short).
3. Be unforgettable: The content should evoke deep feelings and stimulate memories.
4. Testimonial: Human performance and personal testimonials increase the rating, the credibility and reliability of the message (Metzger et al., 2010).

According to Ho and Dempsey (2010), videos that are sent on purpose to advertise will be rejected by receivers, and have fewer possibilities to be forwarded. These authors identified nine factors that are deemed important factor for viral videos: length (3 minutes is considered short), run-time, laughter, element of surprise, element of irony, minority presence, music quality, youth presence and talent.

In particular, the influence of content length is unclear. Some research previously mentioned stated the influence of content length on virality (Ho and Dempsey, 2010; Voltz and Fritx, 2013). On the contrary, Godes and Mayzlin (2004) concluded that the content length does not contribute to eWOM adoption, and Berger and Schwartz (2011) concluded that their results are not robust enough to establish any influence of the length factor on eWOM adoption.

Finally, we will review the literature related to emotional charge. As previously outlined, the emotional charge is critical for virality (Shoeb and Khalid, 2014; Berger, 2003). Berger and Milkman (2012) stated that emotion influences the level of physiological arousal or activation it evokes. Berger and Milkman (2012) observed that emotionally-charged contents are more shared than others. Emotionally evocative contents may be particularly viral; on the contrary, contents that evoke deactivating emotions (e.g. sadness) are less viral.

2.4.1 Content dimensions Literature review.

The key elements of content credibility literature analyzed in this chapter are as follows:

Table 3. Content dimensions literature review.

Autor	Journal	Title	Conclusions
Berger and Milkman (2012)	Journal of Marketing Research	“What Makes online Content Viral?”	When marketing content evoked more of specific emotions characterized by arousal (i.e., amusement or anger), it was more likely to be shared. Their findings adds to the literature by demonstrating that more practically useful, interesting, and surprising content is more viral.
Voltz and Gobe (2013)		Viral Manifesto	Video with more humanity will have better performance. If the video content is true and authentic then it will be more viral
Lundqvist, Liljander, Gummerus and van Riel (2013)	Journal of Brand Management	The impact of storytelling on the consumer brand experience: The case of a firm-originated story	Demonstrating the power of storytelling on consumer experiences. Consumers who were exposed to the story described the brand in much more positive terms
Berger (2013)	New York, NY: Simon & Schuster	Contagious: Why Things Catch On,	Berger reinforces the importance and storytelling effectiveness as it posit vivid and engaging discussions among individuals. Berger propose that the story shoul content the Brand inside. Berger propose to simply adding more arousal to a story or ad can have a big impact on people’s illingness to share it.

Source. Compiled by author review

2.5. *Emotions in Viral Marketing*

We will review some studies on emotions to understand how the valence influences virality and which type of emotions has a higher influence on virality. Finally, we review the emotion clustering that has been proposed in recent studies.

As we show in the literature review, the influence of arousal emotions (either positive or negative) are much more important than the valence itself (Berger and Milkman, 2012; Berger and Schwartz, 2011; Berger, 2013).

We review first the cognition study of emotions to understand how the emotions arise (Oatley and Johnson-Laird, 1987; Stein, Liwag, and Wade, 1997). Second, we review the studies on emotions generated by the marketing message (Bagozzi et al., 1994; Berger and Schwartz, 2011; Berger and Milkman, 2012; Berger, 2013). Third, we review the literature evolution focusing on how different authors cluster emotions.

2.5.1 Emotions

Oatley and Johnson-Laird (1987) defined how emotions are raised as part of the self-regulation of goals. They state that every person evaluates every event according with his plan or goal, due to a monitoring system is applied. Whenever a change happens in the probability of achieving any important goal or sub goal, the monitoring system raises a signal to the cognitive system to response to this change. Humans experience these signals and the state of readiness they induce as emotions.

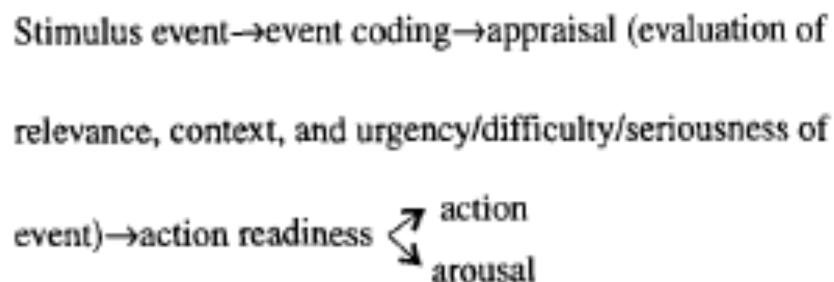
Stein, Liwag, and Wade (1997) evolved the Oatley and Johnson-Laird (1987) conclusions. They observed how the positive and negative emotions arise; Positive emotions (e.g., happiness, joy) are associated with the attainment of a sub goal, which usually leads to a decision to continue with the plan, whereas negative emotions (e.g., frustration, disappointment, anxiety) result from problems with ongoing plans and failures to achieve desired goals. Stein, Liwag, and Wade (1997) showed that the resulting desire conflicts happen when one fails to achieve his goal. At this stage one or more emotion reactions occur within the resulting desire conflict and a coping

response(s) is created towards these emotions (remove the harm, ask for support, reevaluate the goal, or redouble the effort.).

This communication flow from Stein et al. (1997) shows us that a stimulus event, such as a marketing message, could have an effect, action/arousal on the receiver, depending on the type of emotional content. This action could be among others to buy the product, to change the behaviour, to spread the message. To reach these effects the receiver do an appraisal, that is, an evaluation of the event (message) considering the whole context (such as the media, the author, the characteristic of the content)

These authors also stated that not every stimulus leads to the same reaction or emotion arousal. The communication flow from a stimulus event to a receiver reaction is depicted in the following the Figure:

Figure 8: Communication flow. Stein, Liwag, and Wade (1997)



Larser and Diener (1987) claimed that individuals experience their emotions with greater strength, when exposed to emotionally provocative stimuli.

Marketing message contents can be considered as a stimulus event on the communication flow showed by Stein et al. (1997). Rime et al. (1991) state that people may share emotionally charged contents to make sense of their experiences, reduce dissonance, or deepen social connections. Therefore, to understand what type of emotional marketing messages spurs the receiver to act (influence on virality), we are going to review the literature focusing on emotion in marketing discussions (emotional charge message, positive and negative message and arousal message).

2.5.2 Emotions in marketing

Emotional charge content affects virality, as observed in many studies (Godes and Mayzlin, 2004; Berger and Milkman, 2012; Berger and Schwartz, 2011; Berger, 2013). Emotional charge content evokes either positive or negative perceptions (valence) in the receiver. Indeed, either more positive or negative emotional contents are more viral (Berger and Milkman, 2012). But which is more viral, a positive or a negative content? A recent study shows that more positive contents are more viral than negative ones (Berger and Milkman, 2012). Furthermore, this study claims that if content does not evoke any emotion, positive contents are more viral than negative contents (Berger and Milkman, 2012). As opposed to Berger and Milkman (2012) conclusion about positive emotions greater influencing people to take action, recent studies note the high influence of negative emotions (Romani, Grappi, and Dalli, 2012).

On one hand, the content valence with a positive-negative bipolar scale has been questioned by recent studies (Godes and Mayzlin, 2004; Laros and Steenkamp, 2005). Godes and Mayzlin (2004) classified the valence as positive, negative, a mix of both positive and negative. Laros and Steenkamp (2005) clustered the emotions in three layers: First Positive and Negative, second Negative emotions (anger, fear, sadness, shame) and Positive emotions (contentment and happiness –other or circumstance effect-, love -interpersonal- and Pride –self effect-).

On the other hand, some studies concluded that no matter which valence, positive or negative emotions, arousal is the factor which implies more virality (Bagozzi et al., 1994, Berger and Milkman, 2012, Berger, 2013).

Bagozzi et al. (1994) observed that the state of readiness is intensified by emotion rather than by mood or attitude. Bagozzi et al. (1994) stressed that the most important factor is the way emotions arise. Emotions arise due to the response to appraisals that one makes for something relevant to one's well-being. Appraisal means an evaluative judgment and

interpretation made by the person evaluating and interpreting the events and circumstances (Bagozzi et al., 1994).

In his appraisal study of emotions, Roseman (1991) labeled five appraisals: motive consistent/motive inconsistent (i.e., positive emotions versus negative emotions), appetitive/aversive (i.e., presence of a reward vs. absence of a punishment), agency (i.e., outcome is caused by impersonal circumstances, some other person, or the self), probability (i.e., an outcome is certain or uncertain), and power (i.e., strong versus weak coping potential).

An online content that evokes arousal emotions (either positive or negative) implies activation and for that reason is more viral (Berger and Milkman, 2012). Social transmission occurs when consumers are engaged in high levels of arousal from positive and negative emotions, versus low levels of arousal from positive and negative emotions. People discuss many of their emotional experiences with others (Anderson, 1998). Customers report greater word of mouth at the extremes of satisfaction, both highly satisfied or highly dissatisfied (Anderson, 1998). Indeed, this excitatory state has been shown to increase action-related behaviors such as getting up to help others and responding faster to offers in negotiations (Berger, 2013).

Besides, there is a relationship between activation and social transmission. Berger (2013) stated that activation should have similar effects on social transmission and boost the likelihood that content will be highly shared. Berger (2013) stated that research should focus on emotions, not only on the positive ones, but also on the negative ones.

Keeping in mind that anger, anxiety, and sadness are all negative emotions, but while anger and anxiety are characterized by states of heightened arousal or activation and are more viral, sadness is characterized by low arousal or deactivation and is therefore less viral (Berger and Schwartz, 2011; Berger, 2013).

Nonetheless, regarding the arousal and virality relationship, Berger and Schwartz, (2011) found out that arousal implies a state of mobilization which means, that the

stronger the arousal the more actions take place and imply a behaviour to develop either to share or to respond faster.

2.5.3 Emotion clustering

Many studies have provided emotion measurement theories to define the emotional dimensions and clustering.

Later studies on emotional response measurement evolve from a large amount of clustering to a more reduced one. The latest studies use the arousal emotion concept to cluster either positive or negative emotions. We underline some influential studies in the measurement of emotional responses towards advertisements (Edell and Burke, 1987; Holbrook and Batra, 1987; Diener, Smith and Fujita, 1995; Richins, 1997; Romani, Grappi, and Dalli, 2012; Berger and Milkman, 2012).

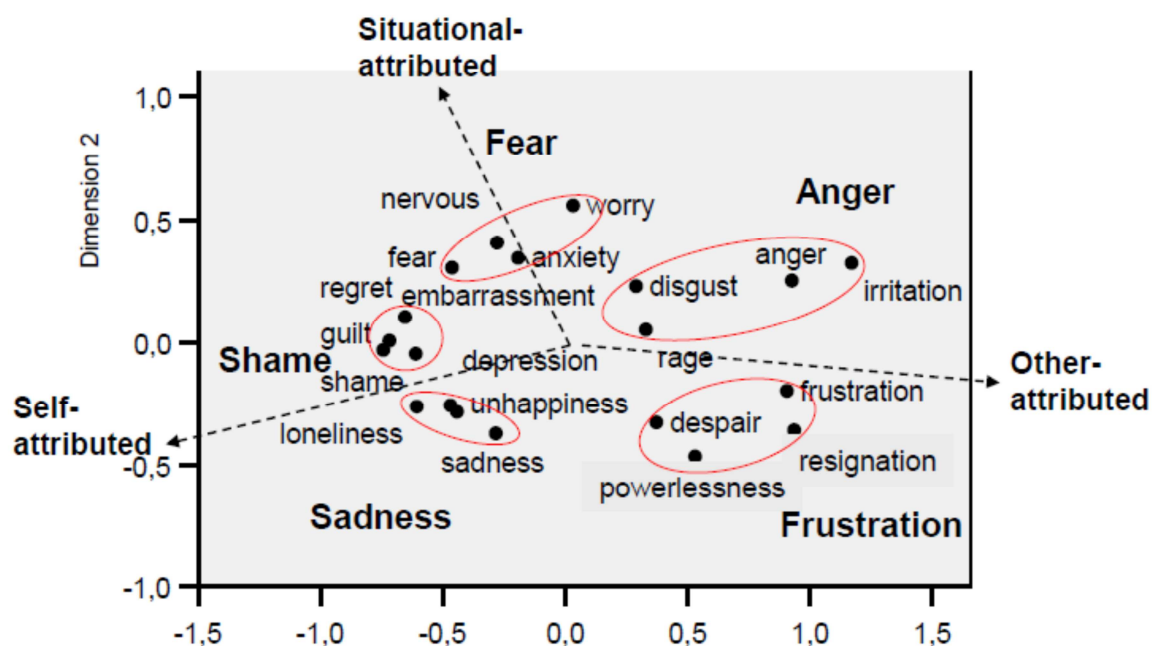
First, Holbrook and Batra (1987) interpreted the emotional principal components as representing pleasure (price affection, gratitude and joy), arousal (interest, activation, surprise, and involvement) and domination (helplessness, sadness, fear, disgust). Second, Edell and Burke (1989) developed a 52-item scale for measuring emotions towards ads, and found that the feeling elicited by ads could be summarized by three factors: upbeat feeling, negative feeling, and warm feeling. Third, Holbrook and Batra (1987) worked with a 94-item scale, latter it was later reduced to a 34-item scale (Batra and Holbrook, 1990). Fourth, Richins (1997) used the consumption emotion set list of descriptors setting clusters and descriptors resulting in 16 clusters with a different meaning inside the cluster (each cluster reflects the diversity of the experience within that emotion category).

If we focus on negative emotions, recent literature explores the negative emotion clustering. First, we consider the cluster of negative emotions using 16 negative emotions clustered around four categories proposed by Diener, Smith and Fujita (1995):

- Fear (fear, worry, anxiety and nervousness)
- Anger (anger, irritation, disgust and rage)
- Shame (shame, guilty, regret, embarrassment)
- Sadness (sadness, loneliness, unhappiness, depression)

Second, Tronvoll (2011) confirmed the validity of the latent categories of shame; sadness and fear are included in a new cluster anger and frustration (frustration, resignation, powerlessness, despair). Furthermore, Tronvoll (2011) developed the categorization of emotions into first, self-attributed (shame, sadness), second situational-attributed negative emotions (fear), and third, other attributed (anger and frustration), while the other-attributed, such as frustration is the main driver for a complaining behaviour towards the brand .

Figure 9: Emotion Clustering. Tronvoll (2011)



Third, Romani, Grappi, and Dalli (2012) pointed out six negative classifications of negative emotions (dislike, sadness, discontent, worry, anger and embarrassment):

- Dislike covers contempt, revulsion and hate
- Sadness includes heartbroken, sorrowful, and distress
- Discontent
- Anger: indignant, annoyed, resentful,
- Worry: threatened, insecure, and worried
- Embarrassment: Sheepish, embarrassment, ridiculous

Furthermore, Romain et al. (2012) observed the relationship between emotions and activation. Theirs results determined that dislike, sadness, worry and embarrassment are dimensions that do imply an inactive response. Meanwhile, anger implies a complaining behaviour, and dislike motivates an action against the brand.

Berger and Milkman (2012) use the following emotion clustering of awe, anger, anxiety, sadness, with a five-point Likert-scale (from 1= Low to 5= High), to analyze the arousal emotion influence on virality.

2.5.4 Literature review on emotions.

The key literature sources on emotions we have considered are as follows:

Table 4. Emotions literature review.

Author	Journal	Title	Main conclusions
Richins (1983)	Journal of Marketing	Negative WOM by Dissatisfied Consumers: A pilot study	Richins states the implication of the dissatisfaction which are complain, negative word of mouth, and switch brand
Holbrook and Batra (1987)	Journal of consumer research	Assesing the role of emotions as mediatores of consumer response to adversting	Their findings stress on Six content dimensions, Emotions as mediator the relationships between adversting content and attitude toward the ad or brand.. Pleasure, arousal and domination mediate the effect of ad content on attitude toward Ad and these three emotional dimensions plus Ad affection partially mediate the effects of ad content on Attitude toward Brand.
Oatley and Johnson-Laird (1987)	Cognition and emotion	Towards a cognitive theory of emotions.	Their findings state that emotions are evoked "at a significant juncture of a plan, typically., when the evaluation (conscious or unconscious) of the likely success of a plan changes"
Bagozzi and More (1994)	Journal of Marketing	Public Service Advertisement: Emotions and empathy guide Prosocial behaviour	Their findings show that the most important factor is the way the emotion arise rather than the positive and negative emotions
Richins (1997)	Journal of consumer research	Measuring emotions in the consumption experience. Journal of consumer research	Richins define a new clustering of emotions. Furthermore he states that consumption related emotions are more complex than the two- and three-factor solutions observed in studies of reactions to ads or customer satisfaction
Laros and Steenkamp (2005)	Journal of Business Research	Emotions in consumer behavior: a hierarchical approach	Their finding show a emotion clustering based on three layers, positive, negative and positive-negative

Source. Compiled by author review

Table 4. Emotions literature review.

Autor	Journal	Title	Main conclusions
Romani (2011)	Internation Journal of Research in Marketing	Emotions that drive consumers away from brands: measuring negative emotions toward brands and their behavioural effects	NEB Negative emotional scale toward brand (anger, discontent, dislike, embarrassment, sadness and worry). NEB scale is superior in representing the variance of the relevant outcomes of switching and negative word of mouth. 2) Inactive nature of Sadness, embarrassment and discontent 3) Worry (clustering in Fear concept) leads to brand switching and anger lead to complain. Unlike as previous research Negative WOM is not wholly due to anger. 4) Dislike negative feeling toward the brand
Berger and Milkman (2012)	Journal of Marketing Research	“What Makes online Content Viral?”	Online content that evoked high-arousal emotions was more viral, regardless of whether those emotions were of a positive (i.e., awe) or negative (i.e., anger or anxiety) nature. It comes to contents that arouse behavioral emotions, positive emotions such as awe and happiness are as viral as negative emotions such as anger and anxiety. Online content that evoked more of a deactivating emotion (i.e., sadness), however, was actually less likely to be viral. When marketing content evoked more of specific emotions characterized by arousal (i.e., amusement in or anger), it was more likely to be shared. Their findings add to the literature by demonstrating that more practically useful, interesting, and surprising content is more viral.
Berger & Schwartz (2011)	Journal of Marketing Research	(2011). What drives immediate and ongoing word of mouth?	Arousal emotions drive the word of mouth more than positive or negative emotions
Berger (2013)	New York, NY: Simon & Schuster	Contagious: Why Things Catch On,	Simply adding more arousal to a story or ad can have a big impact on people's willingness to share it.

Source. Compiled by author review

2.6. **Controversy**

There is no extended literature focusing on controversy as related to information adoption and its activation (ex. virality). Recently, some research has been published to consider controversy as a driver for message adoption (Saxena et al., 2012; Chen and Berger, 2013).

Chen and Berger (2013) made contributions about the effect of controversy. Their findings cast doubt on the assumption that more controversy means more buzz. These authors studied the impact of controversy on interest and discomfort.

The things we say influence how others perceive us (Berger and Milkman, 2012). We are prone to talk about interesting rather than boring things, as we are willing to be seen as more interesting (Berger and Milkman, 2012).

As a matter of fact, people want to be socially accepted (Reiss, 2004). For that reason, we are concerned about others' opinions (Argo, White and Dahl, 2006). We avoid talking about uncomfortable topics, when we disagree with other people, as it generates interpersonal conflict, and it could imply fear of social rejection (Buss, 1990). People follow social proof ideas. Therefore, controversy can increase discomfort (Chen and Berger, 2013).

Chen and Berger (2013) research stated that controversy increases interest that is the likelihood of discussion. At the same time, these authors observe that controversy increase discomfort, which decreases the likelihood of discussion, as subjects would like not to be exposed to social conflict.

Depend on the environment, sharing message among friends or sharing message in an anonymous context the discomfort appears differently. In the friendship context the discomfort does not appear as we are in a safety environment. Our friends know us and

therefore we are not exposure to that level of discomfort. Meanwhile in anonymous context, such internet the discomfort effect influence more, as we are more exposure. In internet context, low controversy generates low discomfort and influence more the message adoption. In this context, moderate controversy generates more interest with a control level of discomfort. These authors states that moderate levels of controversy increase the conversation. On the other hand, these authors conclude that whenever a certain point is reached, additional controversy fails to increase (even decrease) conversation (as it generate high discomfort). In the internet context, high levels of controversy implies high level of discomfort which reduce the likelihood of discussion (Chen and Berger, 2013). Therefore, on an internet environment, less controversial topics and less controversial campaigns may be more effective to generate word of mouth and message adoption.

As stated previously, Saxena et al. (2012) has defined a controversy formula (see 5.2.3 paragraph) based on the ‘for’ and ‘against’ opinions. Saxena et al. (2012) has stated that controversy is a critical factor, closely related to virality, and defines the competence of an information item to fragment the viewers into two different pools (‘for’ and ‘against’). Therefore, the higher controversy evoke by a message, the greater probability of getting viral.

As Saxena et al. (2012) stated, ‘likes’ and ‘dislikes’ are considered to be the measure of the number of people who appreciate the information item and who do not like that information item. There are many instances where there is total agreement, i.e. number of likes is much higher than number of dislikes. Here the information item is viral because of its high appreciation factor. $\text{Max}(\text{likes}, \text{dislikes})$ represents the larger of the two values, and $\text{min}(\text{likes}, \text{dislikes})$ represents the smaller of the two values. The controversy co-efficient value ranges from 0 to 1. Where any value tending towards 0 denotes non-controversial and values tending towards 1 denote a highly controversial information item.

To sum up, different conclusions can be extracted from recent studies. While Saxena et al. (2012) state that controversy influences one of the message adoption effect, virality,

Chen and Berger (2013) stated that controversy cannot be considered a proportionally direct factor for virality.

2.7. Summary

First, we have reviewed the literature on the message adoption process. Besides, we have reviewed the viral marketing literature which defines what is viral marketing and the measurement of message adoption in its viral marketing application. Finally, we discuss critical factors for effective viral marketing campaigns.

Second, we have identified credibility as the key characteristic of the source influence on message adoption. Our analysis has focused on the credibility of the source's different elements (author and media) and on the message credibility.

Third, we have underlined the content dimensions (format, testimonial, storytelling, and emotional charge) by reviewing the video content literature.

Fourth, we have reviewed emotion theories. We have also pointed out that the emotion valence is non-bipolar. Clustering emotions are evolving along the literature. We highlight negative emotions. As pointed out by recent scholars, arousal emotions are more influential than the valence itself on information adoption and viralization.

At the end of the literature review, we have made a reference to controversy literature even if there is no much literature about it. Nevertheless, we suggest some conclusions regarding which level of controversy has more influence on virality and we explain the controversy formula.

Based on the literature review, we conclude that no research has yet covered the analysis of message adoption and its application to viral marketing campaign from an integral point of view including all the above mentioned concepts.

3 CHAPTER 3. Research Hypotheses and Empirical Model

This research makes contributions to the current research on message adoption, and its application to viral marketing campaigns. The aim of this research is to better understand some factors that improve the effectiveness of an viral marketing campaign.

Previous research has mainly focused on message adoption and credibility (Sussman and Siegal, 2003; Rabjohn, Cheung and, Lee, 2008). Recently, scholars have stressed on the influence of emotions (Shoeb and Khalid, 2014; Berger, 2013, Berger and Milkman, 2012; Berger and Schwartz, 2011; Bagozzi et al., 1994). Only a few of them have claimed on the influence of controversy (Saxena et al, 2012; Chen and Berger; 2013).

Our research considers the three main descriptors (message credibility, emotions and controversy) taking into account that they are a strong reference as influencers on message adoption. In addition, we study message adoption and its application to virality, focusing on online viral marketing campaigns mainly based on video content.

First objective of this research is to examine how author credibility, media credibility, and message content factors influence message credibility. Second objective is to examine the direct effect of message credibility on the message adoption. Third objective is to study the mediating effect of certain arousal emotions in the relationship between message credibility and message adoption. Fourth objective is to examine how controversy moderates the relationship between message credibility and message adoption.

3.1. Hypotheses 1. Author and media credibility influence on message credibility

The message adoption model (Sussman and Siegal, 2003; Rabjohn, Cheung and, Lee, 2008) states that credibility of the source influences message adoption. Metzger et al. (2003) state that credibility has three perspectives, based on: author credibility, media credibility, and message credibility.

3.1.1 Hypotheses 1a. Author credibility

Sundar and Nass (2001) showed that credibility of an author influences message credibility. Berger and Milkman (2012) studied the author credibility influence on viral e-mailing of news articles published in Internet. Berger and Milkman (2012) confirm author credibility influence on message credibility. They showed that the more famous an author is the more influence he or she has on message adoption. We will analyze if this relationship applies to on-line viral marketing based on video content. In this context, we propose that the more credible an author form viral campaign is the more credible is the message, as stated previously in other contexts.

H1a. An author credited with high (vs low) credibility will contribute to generate a more credible message

3.1.2 Hypothesis 1b. Media credibility

In the Internet environment, Chaiken (1980) stresses that media credibility has a high influence on message credibility. He stated that since subjects in internet environment have no time to carefully and thoughtfully analyze the message content, people trust the media where the content has been published. On viral campaign, subjects assume that if the media is credible, the content published is also credible (Chaiken, 1980). Consequently, we could state that media credibility exerts a high influence on the credibility of the message on viral campaign (Thorson and Rogers, 2006).

In online video viral marketing campaigns, we are going to examine that the more credible the media is, the more credible the message.

H1b. A media credited with high (vs low) credibility will contribute to generate a more credible message

3.2. *Hypotheses 2. Content factors influence on message credibility*

The content of the message is always a driver for the receiver's perception about the message (Sussman and Siegal, 2003). Taking into account adoption theories, content always plays a key role in the information usefulness and even more in the message adoption.

several authors found that message credibility is influenced by several content dimensions (Holbrook and Batra, 1987; Woerdl, 2008). From the content dimensions that influence message credibility, defined in the reviewed literature, we examine those that are more related to viral marketing campaigns. We first identify content format in order to observe the differences in credibility of video and text message. Second, we examine the influence of testimonials in message credibility, as videos or text could contain testimonials, or simple information (e.g. images). Third, we examine the influence of storytelling in message credibility. Fourth, we study emotional charge, in the viral campaign, the message could evoke emotions or not.

3.2.1 Hypotheses 2a. Format

More and more videos are used in viral marketing strategies. Authors such as Lin et al., (2012) found that video messages influence message credibility and virality more than text messages. We will examine the influence of videos, as opposed to text messages, on message credibility.

H2a. Video (vs text) messages will contribute to generate a more credible message

3.2.2 Hypotheses 2b. Testimonials

Several studies highlight that testimonial in the content increases the reliability and the credibility of the message (Metzger, Flanagin and Medders 2010). Voltz and Gobe (2013) found that message conveyed through more human-centered videos will have a better performance and are more credible than just images with no testimonials. We state that whenever testimonials are included in contents that exert a high influence on message credibility.

H2b. Messages with testimonial (vs no testimonial) content will contribute to generate a higher credibility in the message

3.2.3 Hypotheses 2c. Storytelling

Some recent studies claim the influence of storytelling not only in message credibility but also in virality as the message adoption effect (Berger, 2013; Lundqvist, Liljander, Gummerus and van Riel, 2013; Voltz and Fritx, 2013). Berger (2013) reinforced the importance and effectiveness of storytelling as it engages the audience and provides useful information. This useful information positively influences message adoption as stated by Sussman and Siegal (2003). We consider that stories having story structure (a beginning, a body and an end) are a more practical and useful piece of information and then the receiver perceives as more credible.

H2c. Messages that convey a storytelling (vs no storytelling) will contribute to generate a higher credibility in the message

3.2.4 Hypotheses 2d. Emotional charge

Emotional charge content impacts the receiver to perceive the message closer to his experience and therefore it evokes the receiver social connections with the message. This effect influences the receiver to perceive the message more credible (Dobele et al., 2007, Shoeb and Khalid, 2014, Berger, 2013; and Berger and Schwartz, 2011; Berger

and Milkman, 2012). We consider that the more emotional charge a message has, the more it impacts the receiver, and therefore the higher the impact on the receiver, the more the receiver believes in the credibility of the message.

H2d. Messages with emotional burden will contribute to generate higher credibility in the message

3.3. *Hypotheses 3. Arousal emotions mediating message adoption*

There are several studies concluding that positive and negative emotions influence virality. Nevertheless, recent studies conclude that arousal emotions, no matter if they are positive or negative, are the ones most influencing virality (Berger and Milkman, 2012).

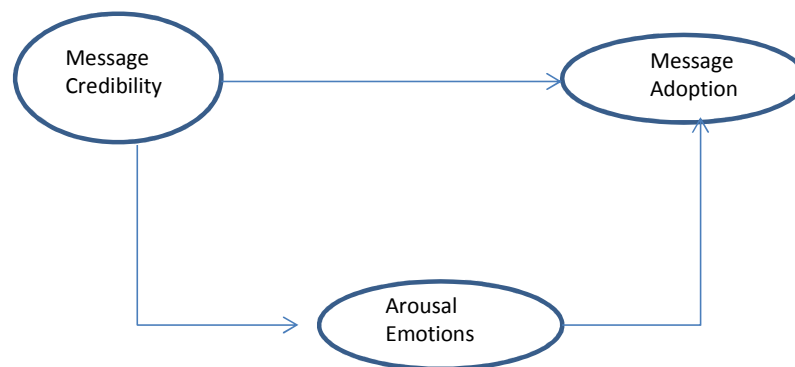
Arousal emotions have a bigger influence than positive and negative emotions (Berger and Milkman, 2012; Berger and Schwartz, 2011; Berger, 2013). That is to say, arousal is a state of mobilization which encourages actions related to behaviour. One of the actions of such mobilization is to share the message.

Following the previous conclusions we will test, in the viral marketing context, that the higher arousal emotions are exerted by the content, the higher influence on message adoption. Likewise, the lower the arousal emotion, the lower the mediation influence on message adoption (Berger and Milkman, 2012; Berger and Schwartz, 2011; Berger, 2013).

H3: Arousal emotions mediate the relationship between message credibility and message adoption.

We outline the hypotheses in the figure below

Figure10. Arousal emotions mediation effect



H3

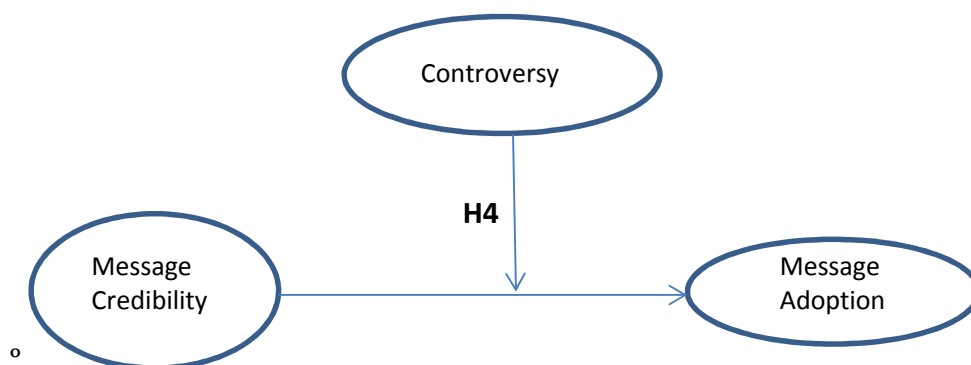
3.4. Hypotheses 4. Controversy moderating influence

Saxena et al. (2012) found that controversy exerts a positive influence on virality, whereas Chen and Berger (2013) stated that high controversy does not influence virality. There is not a clear understanding of the controversy effect and it is quite a new descriptor identified for message adoption and its application to virality. We have reviewed that the majority of opinions are conducted by the receiver's appraisal. People follow social proof ideas. Controversy increases discomfort (Chen and Berger, 2013). Therefore, we posit that high controversy leads to low virality, and low controversy leads to high message adoption and higher virality.

H4: Controversy moderates the relationship between message credibility and message adoption.

Hypothesis 4 is depicted in the Figure below:

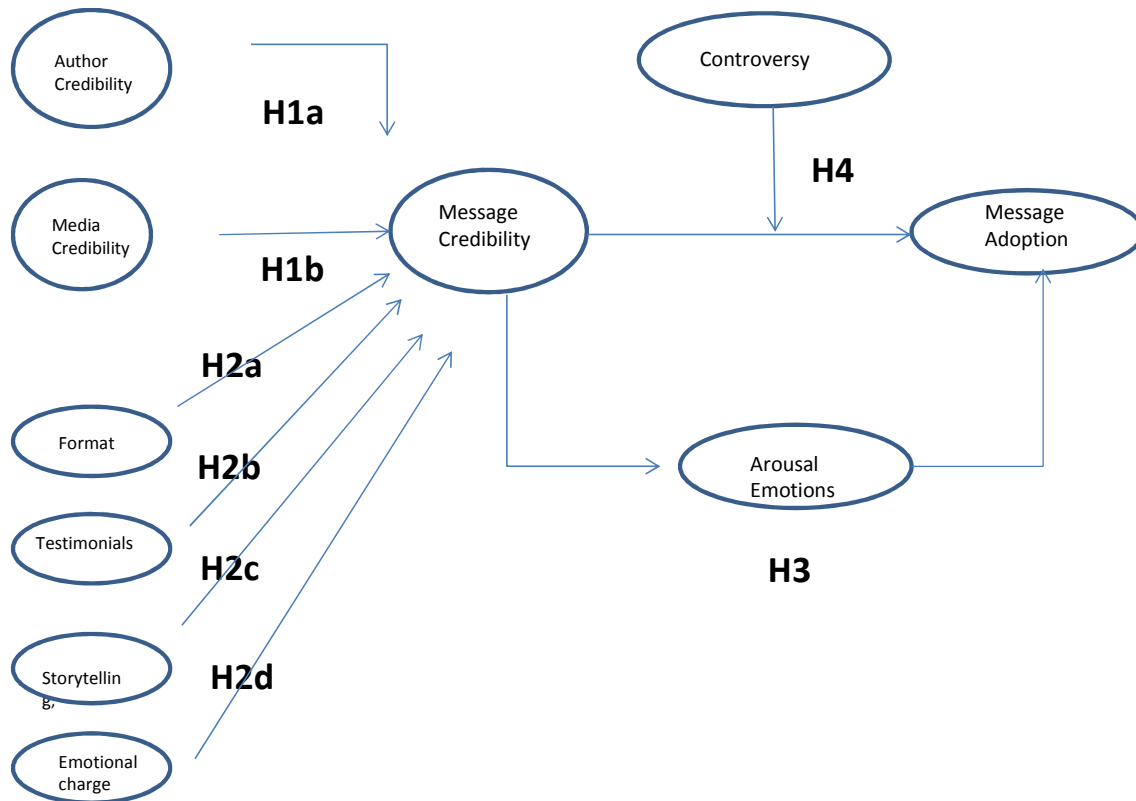
Figure11. Controversy moderating role



3.5. Message adoption conceptual framework

As previously mentioned, the process of information adoption will be analyzed following the key factors mentioned in our research's conceptual framework (Figure 12)

Figure12. Message adoption conceptual framework



The conceptual framework depicted in Figure 12 outlines the Hypotheses we have previously defined

H1a. An author credited with high (vs low) credibility will contribute to generate a more credible message

H1b. A media credited with high (vs low) credibility will contribute to generate a more credible message

H2a. Video (vs text) messages will contribute to generate a more credible message

H2b. Messages with testimonial (vs no testimonial) content will contribute to generate a higher credibility in the message

H2c. Messages that convey a storytelling (vs no storytelling) will contribute to generate a higher credibility in the message

H2d. Messages with emotional burden will contribute to generate higher credibility in the message

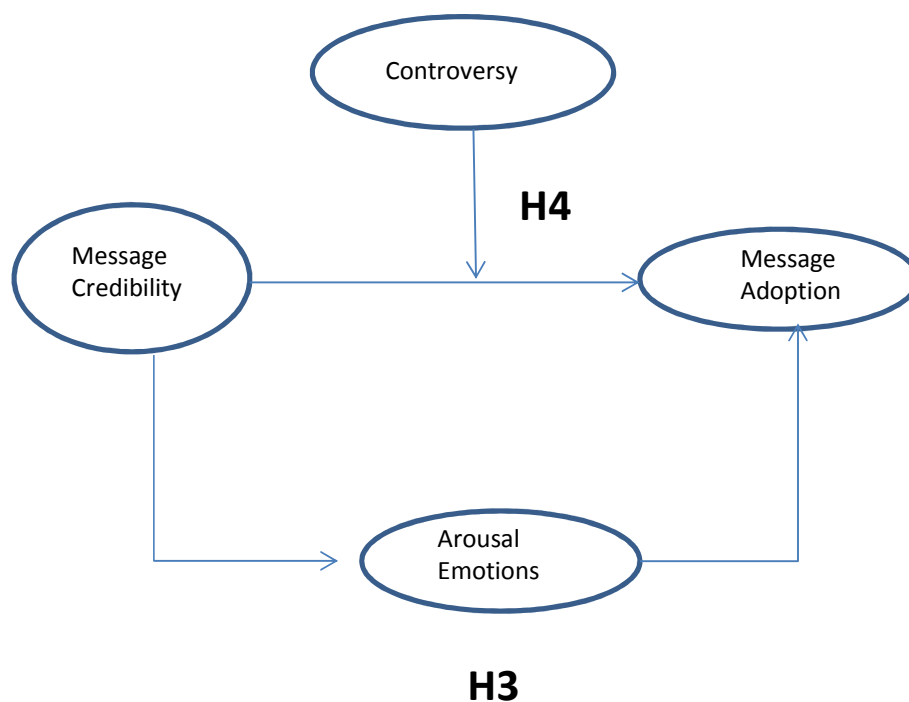
H3: Arousal emotions mediate the relationship between message credibility and message adoption.

H4: Controversy moderates the relationship between message credibility and message adoption.

3.6. Message adoption model

The proposed model depicted in Figure 13 outlines the main hypothesis we have defined to set up the complete adoption model:

Figure 13. Message adoption proposed model



H3: Arousal emotions mediate the relationship between message credibility and message adoption.

H4: Controversy moderates the relationship between message credibility and message adoption.

4 CHAPTER 4. METHODOLOGY

In Chapter 4, we will define the methodology used to test our conceptual framework and our proposed model for message adoption. First we introduce the reason to choose the viral marketing campaign case of study. Second, we briefly explain the case of study (phases and messages). Third we define the measurement of each descriptors of the study

4.1. *Case of study*

We have selected a case of study to test the conceptual framework and the proposed model. This case of study is based on an Internet viral marketing campaign released in 2011 by a Spanish Telco Company, whose initial goal was to increase the number of visits and the number of visitors to the Company Web site (News Web site).

4.1.1 Reason for choosing the Case of Study

We chose this case of study for our research as this viral campaign had the following features. First large budget to seed quite a lot of number of video messages on the internet, simulating end user made videos. There were multiple messages launched from an enriched one (high real video) to a simple one (only text). That variety allows us to analyze the content factors.

Second, high volume senders of viral marketing messages (called seeding users), plus the official message on the Company Web Site, that helps us to do a better analysis of the effects of the author in this campaign.

Third, Company Web Site and also the YouTube platform used as the main communication channel/media which make much easier to track the results, and to analyze these two type of media (Brand based Web Site, and YouTube).

Fourth, the campaign has last 3 months, facilitating the analysis of its effects. Fourth, in each phase a number of messages In each phase a number of messages were incorporated. Phases that comprise the campaign (teaser, development and conclusion -

making off - phase). In each phase different messages were delivered which are the bases for the research. That structure allows us to track in a more meaningful way, the results of the campaign.

The action of viral marketing was aimed at boosting the volume of Internet users who would visit the Company Web Site portal, which was a News Web Site. The marketing campaign consisted of fictitious news (related to UFO visualization) aimed at boosting expectation and virality. To create such fiction, the marketing campaign stimulated the internet environment with messages, either provided by seeding users, who worked for the company in an anonymous way, or provided by the Company Web Site. The seeding users posted the videos in YouTube. The video posted pretended real-life experiences. These videos were produced by the Company as part of the viral marketing campaign

- **Target audience:** Spanish Internet users from 16 to 60 years, both female and male.
- **Temporality:** Action carried out at the end of 2011, 10 August till the 8 of October.
- **Media:** The campaign used the Internet as exclusive media in which viral marketing is delivered: YouTube; Company Web Site; Blogs specialized in UFOs (e.g. Iker Jiménez), blogs of astronomy, blogs of diving, blogs of aircrafts and blogs of scienc; Information Sites (Faro de Vigo, la Voz de Galicia, Co, La Voz de Galicia, El faro de Vigo, El Correo Gallego, Onda Cero; Seeding users Personal Facebook; Social media (e.g. Meneame.net); Video platforms

4.1.2 Content message

The viral marketing campaign was divided in several phases: Phase 1 the warming up, phase 2 the core of the viral marketing campaign, phase 3 resolution phase, and phase 4 the marking off. We are going to show each of the message per phase:

- Phase 1: warming up phase with end user content, mainly in YouTube, and some messages published in the Company Web Site (Message 1 to 10)
 - Message 1. Text message. An expert general explanation about UFO visualization cases in Spain, published in the Company website
 - Message 2. An expert text message of the reality of the UFO cases based on real examples, published in the Company Site
 - Message 3: A generic text article discussing about UFOs, published in the Company web Site
 - Message 4: A user created content video in Mexico, published in YouTube in Mexico with no story, no person acting and no emotional content
 - Message 5: A user created content video published in YouTube in Spain, with only images of a landscape on O'Burgo at night, with a potential visualization of an UFO or a airplane
 - Message 6: A user created content video, of a diver being surprised by some light, published in YouTube
 - Message 7: A user created content video with some persons steering at a potential UFO in Galicia, published in Company Web Site with Company Logo
 - Message 8:: A user created content, of a landscape with several humans seeing the potential UFO visualization, published in YouTube
 - Message 9: A user created content video of a mum with her child in a car, screaming when they something in the air that look like an UFO, published in YouTube
- Phase 2: The core of the viral marketing campaign, in which the company had applied much of the budget (high performance video). It was published in the Company Web Site and also in YouTube.

- Message 10: A user created content with a fishing boat in which the sailor shout when they see an UFO and two military plans going after the UFO, and afterwards the UFO jump in to the water and disappear. At the end a helicopter approaching the boat. Video published in Company Web Site with Company Logo
- Phase 3: the resolution phase of the marketing campaign, using mainly the Company Site Web with messages delivered by the Company (Message 11 to 16)
 - Message 11: A text article, discussing about the several videos that had appeared recently in Spain, published in the Company web Site
 - Message 12: A user created content of a helicopter, looking the same as the message 10, carrying something. Video published in Company web
 - Message 13: A user created content of the two airplane, same as Message 10, being seen while going around with the dog, video published in YouTube
 - Message 14: A user created content video of some specialist opening a UFO shell, published in Company Web Site with Company Logo
 - Message 15: An article published by a specialist of production analyzing the latest videos that had appear about UFO, published in Company Web Site
 - Message 16: A company video published in Company Web Site showing the appearance of the UFO shell
- Phase 4: the making off
 - Message 17: An end user content published in Youtube with the making of the campaign

4.1. *Measurement Methodology*

4.1.1.1 Unit of observations

We have used the marketing message and the opinions (electronic word of mouth) as two types of unit of observations following recent studies of viral marketing (Holbrook and Batra, 1987; Godes and Mayzlin, 2004; Berger and Milkman, 2012; Berger, 2013)

The first study that uses the marketing message of viral marketing as unit of observation was Holbrook and Batra (1987). They have used in their research the advertisement as unit of observation rather than the individual subjects, responders or judges. Holbrook and Batra (1987) considered the ads themselves as having different “personalities” or “emotional profiles” to which members of the target audience react in a fair degree of homogeneity. Holbrook and Batra (1987) used the ad content as unit of observation to look for systematically at the effects on the attitudes via the mediation of emotions. Holbrook and Batra (1987) viewed each set of respondents as a group of coders performing an independent content analysis on the dimensions of interest at the state of the communication model.

Other studies (Godes and Mayzlin, 2004; Berger and Milkman, 2012; Berger, 2013) use the electronic word of mouth as unit of observation to understand the influence of the viral marketing.

4.1.1.2 Coding method and Sentiment Analysis

We have used an independent human coding, three coders, to qualify the two units of observation (the marketing message and the opinions). We have defined rules for the manual coding. First, coders are blind to the hypothesis. They received the unit of observations (either the marketing message or the opinion) and the detailed coding instructions, but not the hypothesis we are going to test. Second, they provide the raters the scale of each variable. Finally, we define the maximum common value of the coding from the three raters to assign the final value.

The process of coding goes first to a pilot test. First, we gave raters feedback on their coding of a test set of messages; until it was clear that they understood the relevant construct. Second we apply this testing till the results from the three raters were homogeneous (reaching a correlated coding – $r=.68$ -). After this testing we launch the final coding

We have followed the coding methodology applied in recent viral marketing research (Berger and Milkman 2012, Chen and Berger, 2013, Berger, 2013). We don't use sentiment analysis tool and use human coding as recent studies conclude that human rating is even better than automatic tools (Thelwall, Buckley, Paltoglou Cai, and Kappas ,2010; Scharkow , 2013)

4.2. *Message credibility measurement*

4.2.1 Author credibility measurement

As detailed in the campaign description, there are two types of authors in the viral campaign used: The seeding user who post his video on YouTube and in order social media, and the Company Web site whenever the message are post in its Web Site. Therefore we can consider two authors: seeding user and the Company Web Site

We qualified the author credibility values in two levels, based on the Sundar and Nass (2001) and Brown and Reingen (1987) studies.

We are going to use the descriptors (expertise, trustworthiness and social ties) that influence on the author credibility stated in the literature, to define the level of the author credibility (Brown and Reingen, 1987). For end user the expertise and the social hub is applicable, meanwhile, we use expertise and trustworthiness for the Company Web Site (Metzger, 2007; Fogg, 2003).

4.2.2 Media credibility measurement

Woerdl et al. (2008) stated that the media, used by the viral campaigns (YouTube, Web sites, emailing), influences the virality. On previous research, Sussman and Siegal (2003) also stated that the credibility of the source is a descriptor that influences the information adoption. Therefore, we have identified media credibility as an independent descriptor.

We qualified the media credibility values (High and Low) based Lee, Kim, and Chan-Olmsted (2011) definition. To measure level of media credibility of YouTube and Company based Web Site we follow the Lee, Kim, and Chan-Olmsted (2011) definition of credibility on Internet media.

4.2.3 Content factor measurement

According to Berger (2013), Voltz and Fritx (2013), Lin, Lu and Wu (2012), we have identified the following descriptors for the content message factor to be applied:

Format, Testimonial, Storytelling, Emotional charge.

We are going to point out, how we classify these descriptors following the research studies we have included in the literature review.

4.2.3.1 Format measurement

Following the conclusion stated by Lin et al., (2012) in which they stated that visual message generate greater interest and adoption, we have identified that the Format description should be considered to analyze the effect in message credibility. Therefore the Format will be coded as Text or Video.

4.2.3.2 Testimonial measurement

Voltz and Fritx (2013) and Berger (2013) concluded that testimonial, has a significant effect on virality. Therefore, we have followed that conclusion and we have selected testimonial descriptor as one of the factor to be studied. We have considered testimonial as a dichotomous descriptor of presence or absence of human activity.

4.2.3.3 Storytelling measurement

Berger (2013) and Lundqvist, Liljander, Gummerus and van Riel (2013) had stressed the high value of the storytelling as a component of the viral video framework. Following his research, we have considered storytelling as a dichotomous descriptor of story driven content or absence of story.

4.2.3.4 Emotional charge measurement

Berger (2013) and Berger and Schwartz (2011) had stressed the high value of the emotional charge as a component of the viral video framework. Following his research, we have considered emotional charge as a dichotomous descriptor of emotion driven content or absence of emotions

4.2.4 Message credibility Measurement

We define message credibility as a variable that has a five-point Likert scale (from 1= Low to 5= High) (Metzger et al., 2003)

4.2.5 Message coding methodology

In order to analyze each message, we apply the coding method that is based on independent human coding to qualify the message (defined in previous paragraph).

4.3. *Message Adoption Model*

4.3.1 Emotions measurement methodology

As pointed out previously, we are going to use the electronic word of mouth/post as a unit of observation (Holbrook and Batra, 1987; Godes and Mayzlin, 2004; Berger and Milkman, 2012; Berger, 2013)

As pointed out by various research, emotions can be gathered in several cluster categories (Richins, 1997; Laros and Steenkamp, 2005; Romani, Grappi, and Dalli (2012); Diener, Smith and Fujita ,1995; Tronvoll, 2011; Berger and Milkman, 2012,

Berger, 2013). We have defined our emotion clustering based mainly on Laros and Steenkamp (2005), Tronvoll (2011) and Berger and Milkman (2012) as those clusters where more applicable to our viral marketing campaign context. Therefore, we have selected the following four arousal emotions (anger, fear, sadness and happiness)

For each arousal emotion (anger, fear, sadness, happiness) we have defined a five-point Likert scale (from 1= Low to 5= High), according to what Berger (2013) has defined in his research

4.3.1.1 Emotions coding

We have applied the same methodology to code the emotions for each post of each viral marketing message as mentioned previous on the 7.1.1.2 Coding method and Sentimental Analysis paragraph. We have gathered the online opinion/post of each viral marketing message in the main Media (Company Web Site and YouTube), where the viral marketing messages are published. We have gathered the post in five day-time after his published (when most of the on-line opinions are published)

A separate group of independent raters code all opinion contents per viral marketing message, rating each one of the arousal emotions defined (anger, fear, sadness and happiness) by a five-point Likert scale (from 1= Low to 5= High). We considered more than one arousal emotion could appear in each message as the emotions are mix it up in a message (Richins, 1997; Godes and Mayzlin (2004)

4.3.2 Controversy measurement

We follow the Saxena et al. (2012) controversy formula in order to measure the controversy:

$$Co = 1 - \{(\max(\text{likes}, \text{dislikes}) - \min(\text{likes}, \text{dislikes})) / (\text{Total number of likes} + \text{Total number of dislikes})\}$$

As Saxena et al. (2012) stated, the controversial factor is defined as high appreciation factor Max (likes, dislikes) represent larger of the two values, and min (likes, dislikes)

represents smaller of the two values. The controversial co-efficient value ranges from 0 to 1. Where any value tending towards 0 denotes non-controversial and value tending towards 1 denotes highly controversial information item

Controversy means the competence of an information item to fragment the viewers into two different pools (Saxena et al., 2012). Usually, the two different pools are ‘for ’ and ‘against’ a particular given information item.

For the purpose to identify the “for” and the “against”, we have applied two methodologies, depending of the two media source of this viral campaign:

1. Manual gathering process of “like” and “dislike” for YouTube Messages
2. A human rating process for Company Web Site opinions generated of the viral marketing campaign, in order to apply “like” and “dislike” code, following the Coding method as defined in the previous paragraph

For the YouTube Messages, the manual gathering process applied is the following: we have extracted manually from YouTube the ‘like’ and ‘dislike ’ values. YouTube shows that values due to the end-user response to the video published in YouTube. We have defined a time frame for this gathering process, from the time when the viral marketing campaign is published till one month later.

For the Company Web Site opinions, we have applied human coding as presented in previous paragraphs. We have applied a human coding of independent coders to rate ‘like’ or ‘dislike’ of each opinions. The opinions have been extracted from the source, after five-day period of time from the published date, as stated in previous paragraphs.

With the ‘like’ and ‘ dislike’ numbers per viral marketing message (sum up the one from YouTube with the one from Company Web Site), we have applied the Saxena et al. (2012) formula to calculate each controversial dependent descriptor.

4.3.3 Message adoption measurement

As mentioned in previous sections, we state that we are going to measure the message adoption by one of each effect: virality. Virality measuring applied follows recent research measurement methodology.

First, following several studies on virality, we use volume of opinions as a measurement tool for virality, that we have called post number (Richins;1983; Reingen and Kernan, 1986; Anderson, 1998; Bowman and Narayandas, 2001; Godes and Mayzlin, 2004; Cruz and Fill, 2008).

Second, we use the number of view (in YouTube) as another measurement for the virality, called, view count (Saxena et al., 2012)

Third, we use the share rate as the number of virality visualization that has been generated in YouTube of viral messages created from the original messages (Saxena et al. 2012). We have found out these viral messages by using the YouTube search tools and applying key words from the viral marketing campaign.

To end up, we have used the Appreciator factor, stated by Saxena et al. (2012) as the number of “likes” per message (with a sum up of Company Web “likes”, calculated as mentioned previously, and “like” number of YouTube)

As a result, we have applied the following fourth categories to measure the information adoption

1. Post number: Number of post per viral marketing message on the Media the message was published – either Company Media Web Site or YouTube- (five days from the publish date)
2. View count: Number of visualization per original message, on YouTube Media (from the publish date till 1 year time)
3. Share rate: Number of visualization in YouTube from all viral messages, that has been created by end users from each original message, (from the publish date till 1 year time)

4. Appreciator factor: number of likes (from the publish date till 1 year time)

We define a depended variable, called message adoption: the virality effect of the message adoption with five-point Likert scale (from 1= Low to 5= High). To assign value for message adoption, we have applied a five threshold subdivision for the fourth categories previously defined

5 Chapter 5. RESULTS

In this Chapter, we first test the influence of author credibility, media credibility, format, testimonial, storytelling and emotional charge to message credibility. Second, we examine the direct of relationship of message credibility and message adoption. Third, we show the mediation effect of arousal emotions on the relationship between. Finally, we show moderation effect of controversy on the relationship between message credibility and message adoption.

For the purpose of measurement, we have gathered post of the seventeen messages of the viral marketing from the YouTube and Company web site. We have decided not to analyze other platform used in this marketing campaign, as the number of posts in this other platforms (Facebook, Blogs, other news webs) was not significant compared with You Tube and Company web site number of post. We have gather around of 3,251 post of the seventy message, 90% from the Company Web Site and the rest from YouTube. To understand the impact of the viral marketing campaign used in the research, we could mention that the total number of visualization go over 6 million, mainly in YouTube platform.

5.1. *Message credibility results*

5.1.1 Statistical Analysis Methodology

We have applied univariate statistical analysis based on the characteristics of variables that we have identified in the message credibility model. As stated in the previous chapters in the conceptual framework, we have used a message credibility dependant variable with a five-point Likert scale ranging from 1= low to 5=high. We have also six two-level independent variables (Media credibility- Low and High-; Author credibility - Low and High-; Format -Video and Text-; Testimonial -Yes or No-; Storytelling - Yes or No-; Emotional charge - High or Low-)

The message credibility model states six relationships with the Message Credibility, one per independent variable. Therefore we have applied univariable statistical analysis for each of these relationships. We first conducted parametric test to test mean differences between the two groups per each variable, testing the null hypothesis of the equal variances. Despite the Levene's test result shows that the variance in the groups compared is significant, we have applied the t-student to test the effect and its measure using the r-value (Rosenthal, 1991).

Nevertheless, due to the violation of variance homogeneity, we conducted a second non-parametric test to analyze the significance value of the effects in each group. A Mann-Whitney's U test is conducted, that is the non-parametric equivalent to independent t-test. This test is applied when there are two conditions and different participants in each condition showing different variances. As the Mann-Whitney's U test is a two-tailed test, it is non-directional, thus we can't state that high analyzed variable increases message credibility. We have just mean to state that high vs low analyzed variable will be different in message credibility. Also, we re-calculate the effect size r-value under non - parametric conditions.

In the following sections we will present the results of both parametric and non-parametric tests, using SPSS 21.0.

5.1.2 Author credibility and message credibility

Following the statistical analysis methodology, Table 4 shows the t-test for the influence of author credibility on message credibility.

Table 4. Author credibility and message credibility parametric results

	Author credibility	N	Mean	SE	Mean error
MsgCredibility	Low	722	1.8276	0.65336	0.02432
	High	1480	3.3324	1.18759	0.03087

Table 5. Author credibility and message credibility Levene's test

	Levene Test to analyze if the variance are equal		T test to analyze the mean comparison		
	F	Sig.	t	dl	Sig. (bilateral)
equal variances	602.57	0	-31781	2200	0
non equal variances			-38295	2170.037	0

Results shows that the variances are significant not equal and effect size r (.64) represents a large effect.

The conclusion of the influence author credibility on message credibility is the following: The relationship between message credibility and author credibility was significant ($p < .05$). On average, message credibility from low author credibility ($M = 1.83$, $SE = .65$) was significantly lower than message credibility from high author credibility ($M = 3.33$, $SE = 1.19$), $t(2170.037)$, $p < .05$, $r = .64$. The effect size estimate indicates that difference in message credibility by author credibility represents a large and substantive effect.

Nevertheless, to avoid Type I error, we have conducted a Mann-Whitney Test and the 2-tailed probability is significant (.000) (Table 6, Table 7)..

Table 6. Author credibility and message credibility non parametric results.

Mann-Whitney Test

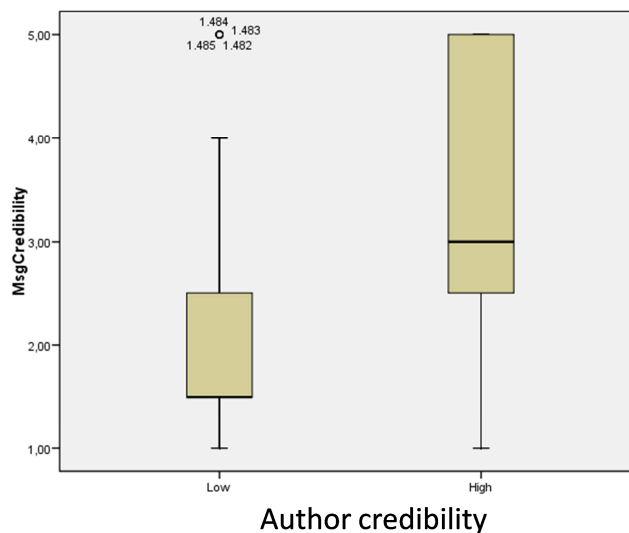
	Author credibility	N	range average	range sum	Mean	N	Típ. desv.	Grouped Median
MsgCredibility	Low	722	553.79	399835	1.8276	722	0.65336	1.741
	High	1480	1368.69	2025668	3.3324	1480	1.18759	2.9874
	Total	2202			2.839	2202	1.25971	2.5448

Table 7. Author credibility and message credibility non parametric results. Mann-Whitney Test (II)

	MsgCredibility
U de Mann-Whitney	138832
W de Wilcoxon	399835
Z	-28.627
Sig. asymptotic. (bilateral)	0

(Size effect interpretation is $r=Z/\sqrt{N}$ >.1 small, >.3 medium, >.5 large effect)

Figure 14. Boxplot for message credibility in high vs low author credibility conditions.



The effect size (r -value .61), recalculated for non-parametric conditions, shows that there is a large effect. Results shows that high author credibility ($Mdn=2.98$) vs low author credibility ($Mdn=1.74$) significantly differ in message credibility, $U=138832$, $r=-.61$. Therefore, we conclude that author credibility exert high influence on message credibility

5.1.3 Media credibility and message credibility

Following the statistical analysis methodology, Table 8 shows the t-test for the influence of media credibility on message credibility.

Table 8. Media credibility and message credibility parametric results

	Media credibility	N	Mean	SE	Mean error
MsgCredibility	Low	584	1.7526	0.5541	0.02293
	High	1618	3.2311	1.21207	0.03013

Table 9. Media credibility and message credibility Levene's test

		Levene Test to analyze if the variance are equal		T test to analyze the mean comparison		
		F	Sig.	t	gl	Sig. (bilateral)
MsgCredibility	equal variances	541.145	0	-28.424	2200	0
	non equal variances			-39.049	208.083	0

Following the results from the SPSS, we could conclude that the variance are significant not equal and effect size r (.65) represents a large effect.

The conclusion of the Media Credibility relationship with Message Credibility is the following: The relationship between message credibility and media credibility was significant ($p < .05$). On average, message credibility from low media credibility ($M = 1.75$, $SE = .55$) was significantly lower than message credibility from high media credibility ($M = 3.23$, $SE = 1.21$), $t(2089.083)$, $p < .05$, $r = .65$. The effect size estimate indicates that difference in message credibility by media credibility represents a large and substantive effect.

Nevertheless, to avoid Type I error, we have conducted a Mann-Whitney Test and the 2-tailed probability is significant (.000) (Table 10 and Table 11

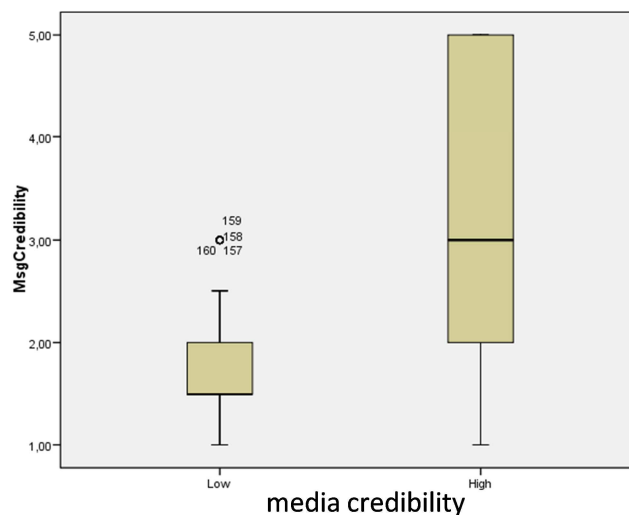
Table 10. Media credibility and message credibility non parametric results. Mann-Whitney Test

	Media credibility	N	range average	range sum	Mean	Tip. desv.	Grouped Median
MsgCredibility	Low	584	506.32	295689	1.7526	0.5541	1.688
	High	1618	1316.33	2129814	3.2311	1.21207	2.9088
	Total	2202			2.839	1.25971	2.5448

Table 11. Media Credibility and Message Credibility non Parametric Results. Mann-Whitney Test (II)

	MsgCredibility
U de Mann-Whitney	124869
W de Wilcoxon	295689
Z	-26,758
Sig. asymptotic. (bilateral)	0

Figure 15. Boxplot for message credibility in high vs low media credibility conditions.



The effect size - r -value $-.57$, recalculated for non-parametric conditions - shows that there is a large effect. Results shows that high media credibility ($Mdn=2.98$) vs low media credibility ($Mdm=1.68$) significantly differ in message credibility, $U= 124869$,

$r = -.57$. Therefore, we conclude that media credibility exert high influence on message credibility

5.1.4 Format and message credibility

Following the statistical analysis methodology, Table 12 and 13 shows the t-test for the influence of format on message credibility.

Table 12. Format and message credibility parametric results

	Format	N	Mean	SE	Mean error
MsgCredibility	Texto	177	2.4605	0.6624	0.04979
	Video	2025	.8721	1.29377	0.02875

Table 13 Format credibility and message credibility Levene's test

		Levene Test to analyze if the variance are equal		T test to analyze the mean comparison		
		F	Sig.	t	gl	Sig. (bilateral)
MsgCredibility	equal variances	110.855	0	-4.185	2200	0
	non equal variances			-7.16	309.947	0

Results shows that the variances are significant not equal and effect size r (.38) represents a medium effect.

The conclusion of the influence of the message format on message credibility is the following: The relationship between message credibility and format credibility is significant ($p < .05$). On average, message credibility from text format ($M = 2.46$, $SE = .66$) was significantly lower than message credibility from video format ($M = 2.87$, $SE = 1.29$), $t(309.037)$, $p < .05$, $r = .38$. The effect size estimate indicates that difference in message credibility by format represents medium effect.

Nevertheless, to avoid Type I error, we have conducted a Mann-Whitney Test and the 2-tailed probability is significant (.000) (Table 14 and Table 15).

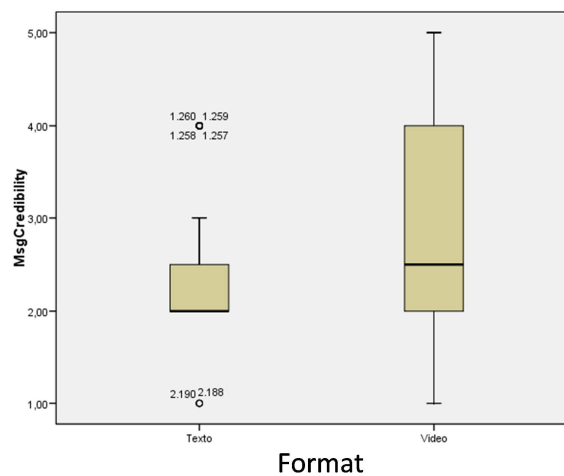
Table 14. Format and message credibility non parametric results. Mann-Whitney Test

	Format	N	range average	range sum	Mean	N	Tip. desv.	Grouped Median
MsgCredibility	Text	177	968.09	171352	2.4605	177	0.6624	2.3231
	Video	2025	1113.16	2254151	2.8721	2025	1.29377	2.5838
	Total	2202			2,839	2202	1.25971	2.5448

Table 15. Format and message Credibility non parametric results. Mann-Whitney Test (II)

	MsgCredibility
U de Mann-Whitney	155599
W de Wilcoxon	171352
Z	-2.952
Sig. asymptotic. (bilateral)	0.003

Figure 16. Boxplot for message credibility in video vs text format conditions.



Effect size (r -value .06), recalculated for non-parametric conditions, shows that there is a small effect. As stated in the Table XX video format ($Mdn= 2.5838$) vs text format ($Mdm= 2.3231$) significantly differ in message credibility, $U= 155599$, $r=-.06$. Therefore we conclude that message format has small influence on message credibility.

5.1.5 Testimonial and message credibility

Following the Statistical Analysis Methodology Table 16 and Table 17 shows t-test for the influence of testimonial on message credibility

Table 16 . Testimonial and message credibility parametric results

	Testimonial	N	Mean	SE	Mean error
MsgCredibility	No	623	2.3467	0.85727	0.03435
	Yes	1579	3.0332	1.338	0.03367

Table 17 . Testimonial and Message Credibility Levene's test

		Levene Test to analyze if the variance are equal		T test to analyze the mean comparison		
		F	Sig.	t	gl	Sig. (bilateral)
MsgCredibility	equal variances	223.679	0	-11.88	2200	0
	non equal variances			-14.274	1753.686	0

Results shows that the variances are significant not equal and effect size r is .32, that represents a medium effect.

The conclusion of the influence of testimonial on message credibility is the following:

The relationship between message credibility and testimonial was significant ($p < .05$).

On average, message credibility from non-testimonial ($M = 2.34$, $SE = .85$) was significantly lower than message credibility from yes-testimonial ($M = 3.03$, $SE = 1.38$), $t(1753.686)$, $p < .05$, $r = .32$. The effect size estimate indicates that difference in message credibility by testimonial represents a medium effect.

Nevertheless, to avoid Type I error, we have conducted a Mann-Whitney Test and the 2-tailed probability is significant (.000) (Table 18 and Table 19).

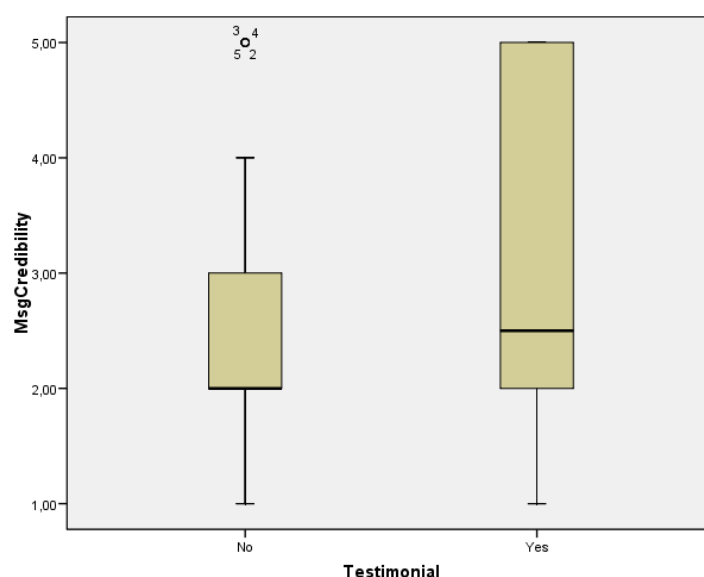
Table 18. Testimonial and message credibility non Parametric results. Mann-Whitney Test

	Testimonial	N	range average	range sum	Mean	N	Típ. desv.	Grouped Median
MsgCredibility	No	623	89.2	556461.5	2,3467	623	.,85727	.,2625
	Yes	1579	1183.69	1869041.5	3,0332	1579	1.338	2.6987
	Total	2202			2,839	2202	1.25971	2.5448

Table 19. Testimonial and message credibility non parametric results. Mann-Whitney Test (II)

	MsgCredibility
U de Mann-Whitney	362085.5
W de Wilcoxon	556461.5
Z	-9.791
Sig. asymptotic. (bilateral)	0

Figure 17. Boxplot for message credibility in “yes” vs “no” testimonial conditions



The effect size (r -value - .21), recalculated for non-parametric conditions, states that there is a small effect. Results shows that “yes” testimonial credibility ($Mdn=3,33$) vs “no” testimonial credibility ($Mdm=1.82$) significantly differ in message credibility, $U= 362085,5$, $r = 0.21$. Therefore we conclude that testimonial content exerts small influence on message credibility.

5.1.6 Storytelling and message credibility

Following the Statistical Analysis Methodology Table 20 and Table 21 shows the t-test for the influenced of storytelling on message credibility.

Table 20. Storytelling and message credibility parametric results

	Story	N	Mean	SE	Mean error
MsgCredibility	No storytelling	1111	2.0981	0.7846	0.02354
	Storytelling	1091	3.5935	1.20338	0.03643

Table 21 Storytelling and message credibility and message credibility Levene's test

		Levene Test to analyze if the variance are equal		T test to analyze the mean comparison		
		F	Sig.	t	gl	Sig. (bilateral)
MsgCredibility	equal variances	675.681	0	-34.602	2200	0
	non equal variances			-34.475	1869.976	0

Results shows that the variances are significant not equal and effect size r is .62, that represents a large effect.

The conclusion of the influence of storytelling on message credibility is the following:

The relationship between message credibility and storytelling was significant ($p < 0.05$).

On average, message credibility from no storytelling ($M = 2.09$, $SE = .78$) was significantly lower than message credibility from storytelling ($M = 3.59$, $SE = 1.20$), t (1869,976), $p < .05$, $r = .62$. The effect size estimate indicates that difference in message credibility by storytelling represents a large and substantive effect.

Nevertheless, to avoid Type I error, we have conducted a Mann-Whitney Test and the 2-tailed probability is significant (.000), Table 22 and Table 23.

Table 22. Storytelling and message credibility non parametric results.

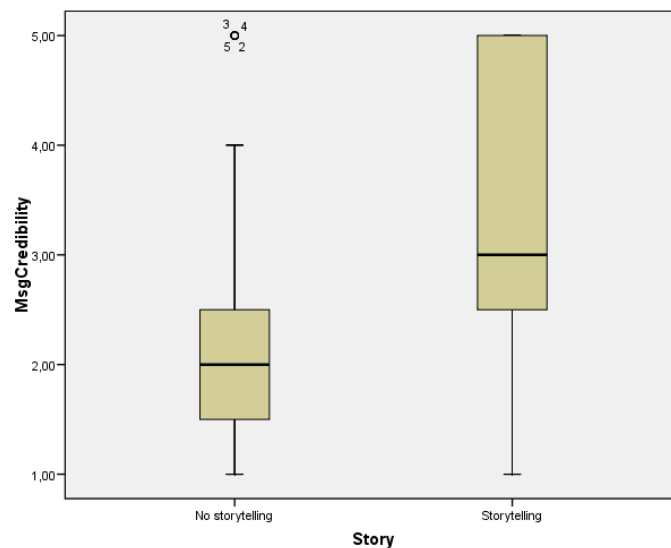
Mann-Whitney Test

	Story	N	range average	range sum
MsgCredibility	No storytelling	1111	729.39	810356
	Storytelling	1091	1480.43	1615147
	Total	2202		

Table 23. Storytelling and message credibility non parametric results. Mann-Whitney Test (II)

	MsgCredibility
U de Mann-Whitney	192640
W de Wilcoxon	810356
Z	-28.099
Sig. asintót. (bilateral)	0

Figure 18 . Boxplot for message credibility in high vs low storytelling conditions.



Effect size (*r-value* - .60), recalculated for non-parametric conditions, states that there is a large effect. Results shows that storytelling vs no storytelling significantly differ in message credibility, $U= 192640$, $r= -.60$. Therefore we conclude that storytelling exert high influence on message credibility.

5.1.7 Emotional charge and message credibility

Following the Statistical Analysis Methodology Table 24 and Table 25 shows the t-test for the influenced of emotional charge on Message Credibility.

Table 24. Emotional charge and message credibility parametric results

	Emotional charge content		N	Mean	SE.
Message Credibility		Low	594	2.3973	0.8378
		High	1608	3.0022	1.34746

Table 25. Emotional charge and message credibility Levene's test

	Levene Test to analyze if the variance are equal		T test to analyze the mean comparison		
	F	p.	t	df	Sig. (bilateral)
equal variances	221.611	0	-10.233	2200	0
non equal variances			-12.583	1696.209	0

Results shows

that the variances are significant not equal and effect size r is .29, that represents a medium effect.

The conclusion of the influence of emotional charge on message credibility is the following: The relationship between message credibility and emotional charge was significant ($p < 0.05$). On average, message credibility from low emotional charge ($M = 2.39$, $SE = .83$) was significantly lower than message credibility from high emotional charge ($M = 3.00$, $SE = 1.347$), $t(1696,209)$, $p < .05$, $r = 0.29$. The effect size estimate indicates that difference in message credibility by emotional charge represents a small-medium effect.

Nevertheless, to avoid Type I error, we have conducted a Mann-Whitney Test and the 2-tailed probability is significant (.000), Table 26 and Table 27..

Table 26. Emotional charge and message credibility non parametric.

Mann-Whitney Test

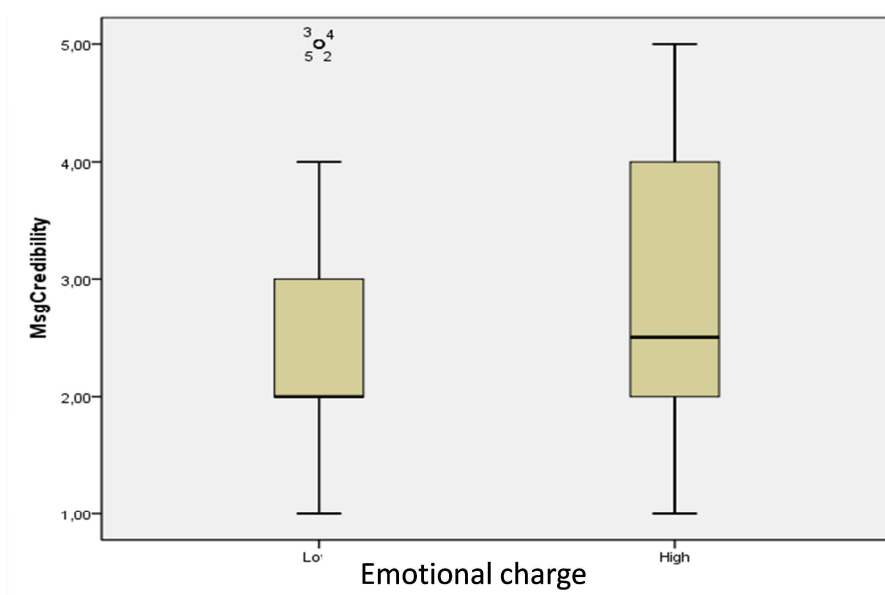
Message Credibility	N	range average	range sum	N	Típ. desv.	Grouped Median
Low	594	924.5	549154.5	594	.8378	2.3024
High	1608	1166.88	1876349	1608	1.34746	2.6733
Total	2202			2202	1.25971	2.5448

Table 27. Emotional charge and message credibility non parametric.

Mann-Whitney Test (II)

	Message credibility
U de Mann-Whitney	372439.5
W de Wilcoxon	549154.5
Z	-8.05
Sig. asintót. (bilateral)	0

Figure.19 Boxplot for message credibility in high vs low emotional charge conditions.



Effect size (r -value - .017), recalculated for non-parametric conditions, states that there is a small effect. Results shows that high author credibility ($Mdn=2.67$) vs low author credibility ($Mdm=2.302$) significantly differ in message credibility, $U= 372439,5$, $r= -.017$. Therefore we conclude that emotional charge exerts low influence on message credibility.

5.1.8 Results summary

We show the result summary that we have extract from the statistical analysis of each relationship:

Table 28. Results on message credibility

Hipotesis	Message Credibility	Significancy	Effect size
		<i>p</i>	<i>r</i>
H1a	Author	SIG	HIGH
H1b	Media	SIG	HIGH
H2a	Formal	SIG	LOW
H2b	Testimonial	SIG	LOW
H2c	Story	SIG	HIGH
H2d	Emotion	SIG	HIGH

$$p < .05$$

Following these results, we conclude that the six factors (author credibility, media credibility, format, testimonial, storytelling and emotional charge) should be considered whenever we build up a message to be credible and therefore to set up viral messages. Nevertheless, we should point out that there are three factors that exert higher influence on the message credibility. The factors author credibility; media credibility and storytelling are the one we should focus on whenever we are in the process to build up credible and viral messages.

5.2. Message Adoption Model Results

5.2.1 Mediating role of emotions

In order to test the mediating effect of the arousal emotions in the relationship between message credibility and information adoption, a Structural Equation Modeling (SEM) was performed using SPSS AMOS 21.0, with a maximum likelihood estimation method. The measurement model consisting of the emotions happiness, fear, anger, sadness together with message credibility and message adoption was tested and showed good fit. All the fit indices were above the recommended thresholds (Hu and Bentler, 1999) indicating respectable fit: $\chi^2 = 270.8$; $df=7$; ($p < 0.01$); Goodness of Fit Index (GFI) = 0.985; Tucker-Lewis Index (TLI) = 0.979 and Root Mean Square Error of Approximation (RMSEA) = 0.07.

As the model has proved satisfactory and to better understand the mediating effect of each emotion (Happiness, Anger, Fear, Sadness) we proceed to test each mediation effect independently.

5.2.2 Direct Effect between Message Credibility and Information Adoption

The direct effect of message credibility on information adoption will be first estimated, and subsequently the mediation effect of each emotion will be tested.

The first condition to test a mediation effect (Baron and Kenny, 1986) is the fact that the direct effect between the independent and the dependent variable is significant.

The result of the analysis showed that message credibility exerts a positive and significant influence on message adoption, as had been predicted (standardized path coefficient = 0.37; $p < 0.05$); See Figure 20

Figure 20. Message credibility Direct effect on message adoption



5.2.3 Mediation effects

Next, in accordance with the ‘causal steps approach’ by Baron and Kenny (1986), the potential mediation effect of each emotion under study on message adoption was ascertained.

The direct and indirect effects were tested for significance using the Bootstrap estimation procedure (Bootstrap sample of 2,000) in two parts: a basic model postulating a direct relationship between the predictor (message credibility) to the criterion (message adoption) in the absence of mediators, and a mediation model that posits the relationship between message credibility and message adoption, as mediated by each arousal emotion.

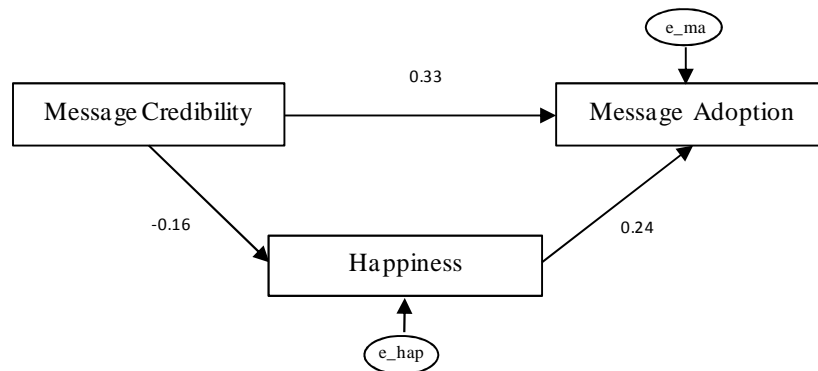
5.2.3.1 Happiness mediation effect

When the mediator (happiness) was added to the model in order to evaluate the indirect effects of message credibility on message adoption, the magnitude of the association between both variables was reduced but remained significant ($\beta = 0.327$, $p < 0.01$). These results are consistent with a partial mediation.

Table 30. Happiness direct and indirect effect

Relationship	Direct β without mediation	Direct β with mediation	Indirect β	Mediation effect
Message credibility to Message adoption via happiness	0.371 ($p < 0.01$)	0.327 ($p < 0.01$)	-0.038 ($p < 0.01$)	Partial

Figure 21. Happiness indirect effect



5.2.3.2 Anger Mediation effect

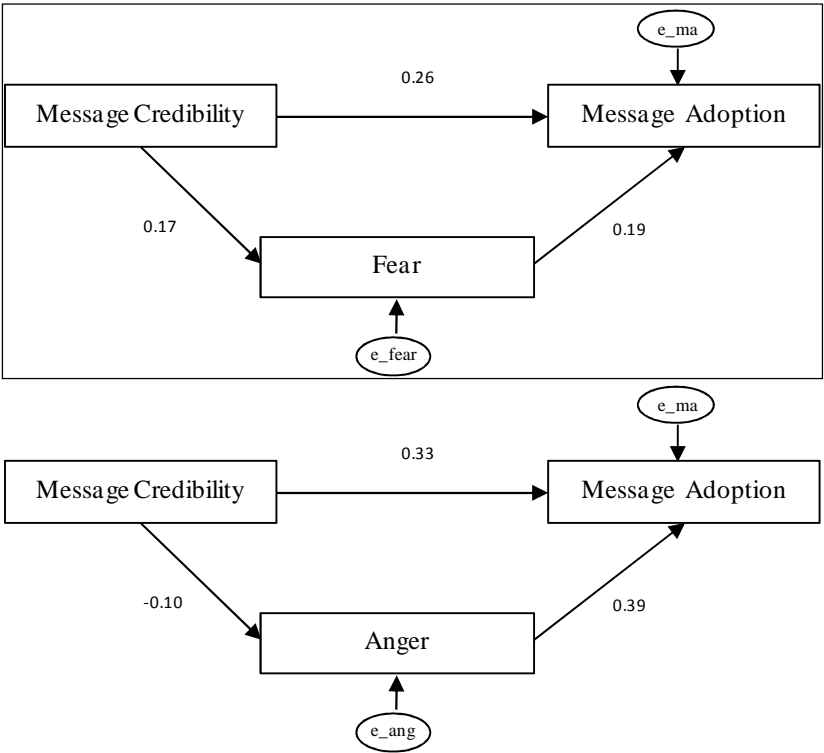
When the mediator (anger) was added to the model in order to evaluate the indirect effects of message credibility on message adoption, the magnitude of the association

was reduced but remained significant ($\beta = 0.329$, $p < 0.01$). These results are consistent with a partial mediation.

Table 31 Anger indirect effect

Relationship	Direct β without mediation	Direct β with mediation	Indirect β	Mediation effect
Message credibility to adoption via anger	.371 ($p<0,01$)	.329 ($p<0,01$)	-.041 ($p<0,01$)	Partial

Figure 22. Anger indirect effect



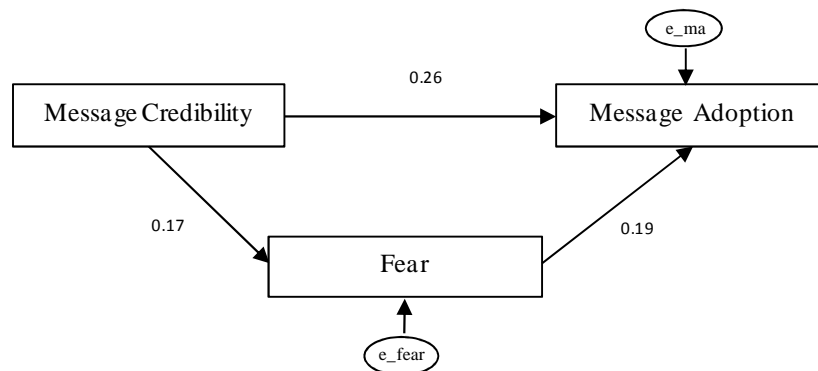
5.2.3.3 Fear Mediation effect

When the mediator (fear) was added to the model in order to evaluate the indirect effects of message credibility on message adoption, the magnitude of the association was reduced but remained significant ($\beta = 0.256$, $p < 0.01$). These results are consistent with a partial mediation.

Table 32 Fear Indirect effect

Relationship	Direct β without mediation	Direct β with mediation	Indirect β	Mediation effect
Message credibility to adoption via fear	.371 ($p < .01$)	.256 ($p < .01$)	-.038 ($p < .01$)	Partial

Figure 23. Fear indirect effect



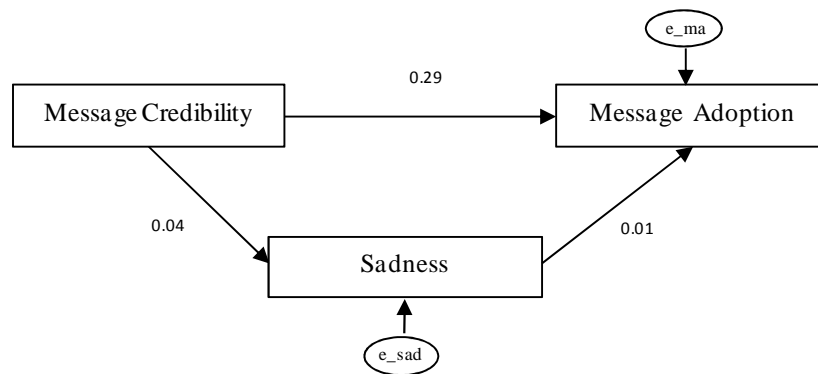
5.2.3.4 Sadness Mediation effect

When the mediator (sadness) was added to the model in order to evaluate the indirect effects of message credibility on message adoption, the magnitude of the association was reduced but remained significant ($\beta = 0.286$, $p < 0.01$). Meanwhile the results show that we could not verify the mediation effect of sadness due to the p value (.672)

Table 32 Sadness Indirect effect

Relationship	Direct β without mediation	Direct β with mediation	Indirect β	Mediation effect
Message credibility to adoption via sadness	0,371 (p<.01)	0,289 (p<.01)	0 (p=.672)	No significant

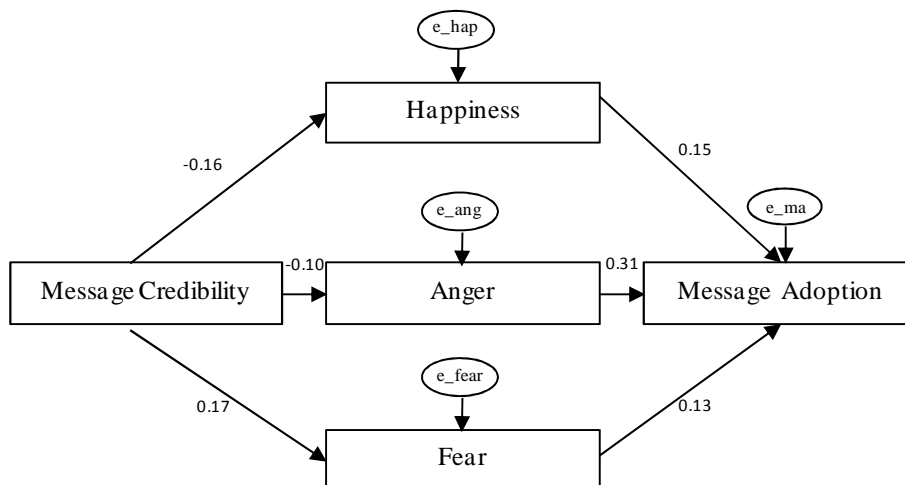
Figure 24. Sadness Indirect effect



5.2.3.5 Direct and Indirect Effect. Emotion Mediator effect final model

As a result of the direct and indirect effects, we have modified the model to keep only the significant relationships (excluding sadness from the new model):

Figure 25. Mediation effect final model



The final model that considers the mediation effect of the arousal emotions in the relationship between message credibility and message adoption was again subjected to a Structural Equation Modeling (SEM) using SPSS AMOS 21.0, with a maximum likelihood estimation. The model continues to show good fit indices (Hu & Bentler, 1999) indicating respectable fit: $\chi^2 = 100.4$; $df=6$; ($p < 0.01$); Goodness of Fit Index (GFI) = 0.961; Tucker-Lewis Index (TLI) = 0.98 and Root Mean Square Error of Approximation (RMSEA) = 0.056.

5.2.3.6 Mediation results

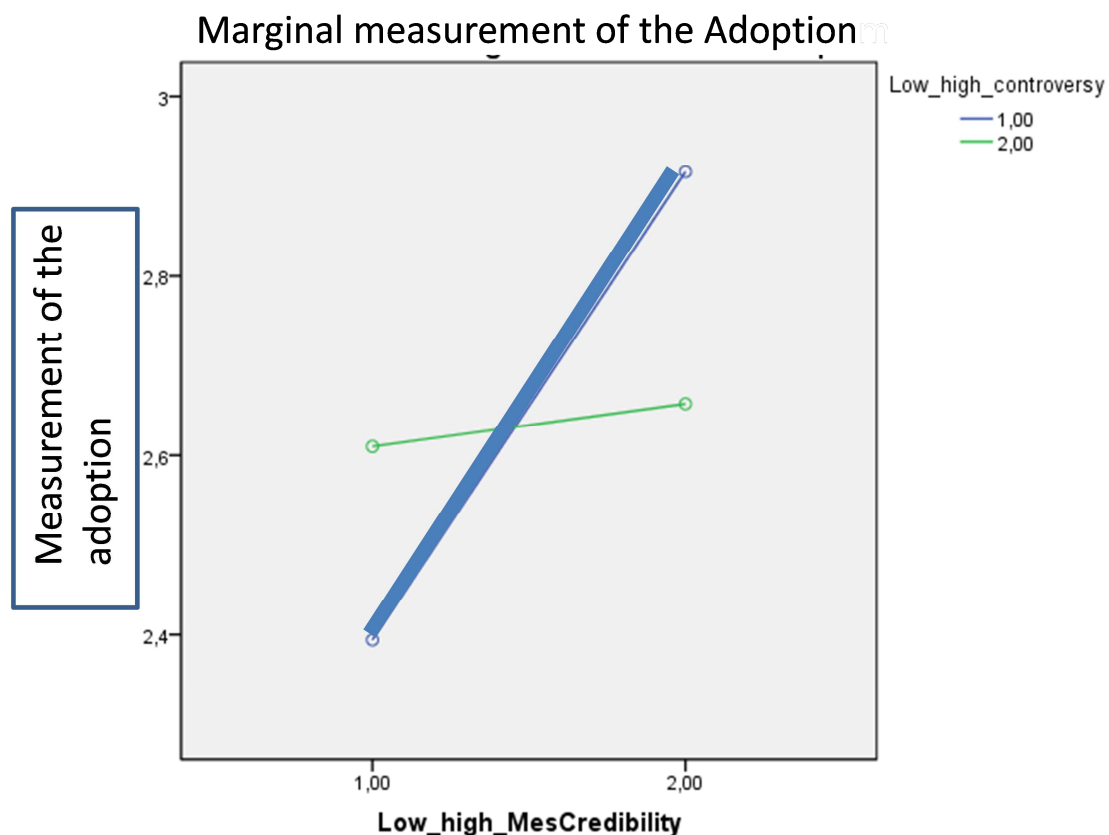
We conclude that high arousal emotions such as happiness, anger or fear exert a partial mediation influence on the relationship between message credibility and message adoption. However, we could not verify that sadness, a low arousal emotion, had a mediation effect on the mentioned relationship. These conclusions partially underpin the Berger (2013) results in other context, as stated in previous chapters.

Therefore H3 is supported, and we conclude that high arousal emotions (such as happiness, anger and fear) mediate in the relationship between message credibility and message adoption. That conclusion is not linked with the positive or negative of the emotion as we have covered both cases.

5.2.4 Moderation effect of the Controversy

Our objective is to test the moderation effect of controversy on the relationship between message credibility and message adoption. Controversy as a moderator is defined as an independent variable which has an effect on the relationship between message credibility and message adoption. That is, whenever a controversy appears the relationship between message credibility and message adoption is modified. We followed Gaskin (2012) to test the moderation effect. To proceed with the analysis we split the independent variable, message credibility, and the moderator variable, controversy in two groups (Low vs High) using the median. We used SPSS AMOS 21.0 to confirm that the interaction between message credibility and controversy altered the direct relationship between Message credibility and adoption. The results are shown below.)

Figure 26. Moderation effect of the controversy



As the figure shows, there is no significant difference in the adoption message and message credibility relationship, whenever the controversy is high (see the slim line). On the other hand whenever there is low controversy there is a significant effect in the relationship between adoption message and message credibility, (see the thick line).

Table 33. Controversy moderation effect

	Low controversy		High controversy		z-score
	Estimate	P	Estimate	P	
Message credibility	0,347	0,000	0,163	0,000	-3,714

Therefore, we conclude that controversy significant moderate the relationship between message credibility and message adoption. Low controversy increase the relationship between message credibility and message adoption, while high controversy decrease the relationship between message credibility and message adoption,

The result of the moderation research results (the low controversy significant moderator effect) follows the hypothesis that the people want to be social accepted (Reiss, 2004), and want to avoid discomfort on internet environment (Chen and Berger, 2013).

Therefore, whenever there is a social proof, or a massive acceptance/rejection of the message by the audience, measured by the high level of positive/negative audience response, that is low controversy, then, there is a positive effect on the message adoption.

5.1. Result summary

Results of this research together with the hypothesis are shown in the following table:

Table 34. Result summary

Hypothesis			Significance	Effect size	Hypothesis supported
H1a	Author credibility	Message credibility influence	Sig.	High	YES
H1b	Media credibility		Sig.	High	YES
H2a	Format		Sig.	Low	YES
H2b	Testimonial		Sig.	Low	YES
H2c	Storytelling		Sig.	High	YES
H2d	Emotional Charge		Sig.	Low	YES
H3	Arousal emotion mediation influence	influence on the relationship between Message credibility and message adoption			YES
	High arousal emotions		Sig.	High	
	Low arousal emotions		No sig.	-	not able to be verified
H4	Controversy moderation influence				YES
	Low controversy		Sig.		
	High controversy		Sig.		

6 CHAPTER 6. General discussion

6.1. *Discussion*

This paper studies what are the critical factors of message adoption and its application on an effective viral marketing. We cover this objective from an integration point of view covering the three components of the communication process: author, media and content.

Previous studies explored message adoption and virality from partial framework. Throughout the literature review, we show that some studies explain the decision-making process in internet (Chaiken, 1980). Other studies explain the adoption model (Sussman and Siegal, 2003; Rabjohn, Cheung, Lee and, 2008) or credibility analysis (Sundar and Nass, 2001) and other studies explained the internet media credibility, (Cha, 2014). Recently, studies concluded that emotions impact on message adoption and virality (Berger and Milkman, 2012), others reveal controversy effect on message adoption (Chen and Berger, 2013), and some others analyze the virality effect (Shoeband Khalid, 2014; Saxena et al., 2012). Nevertheless, there are no previous studies defining a complete model for message credibility and message adoption.

Our research provides a conceptual framework of viral marketing and a proposed model for message credibility and message adoption, applying on online viral marketing campaign. Besides, our research mainly studies a viral marketing campaign (based mainly on video content), while previous research focused mainly on text viral marketing campaign.

The main findings are the following:

1. Message credibility findings.
 - a. We conclude that author credibility, media credibility, content factors (Format, testimonial, storytelling and emotional charge) have a significant impact on message credibility

- a. We shed light on the fact that author credibility, media credibility and storytelling have a high effect on message credibility, in the online viral marketing campaign context where the thesis is based on
2. Arousal emotions mediate on the relationship between message credibility and message adoption,
 - a. We conclude that message credibility has a direct and significant influence and its effect is relevant to message adoption. Our findings are observed in a video online marketing campaign analyzed.
 - b. We are not able conclude that low arousal emotions, such as sadness, have no mediating effect on message credibility for message adoption, a results shows that the effect is not significant
 - c. On the other hand, we conclude that high arousal emotions (happiness, anger and fear) exert a mediating effect on the relationship between message credibility and message adoption. We show that such a mediating effect is partial
3. The relationship between message credibility on message adoption is moderated by controversy
 - a. We shed light on the fact that low controversy moderates the relationship between message credibility and message adoption. This finding suggests that controversy represents a sort of social proof for the receiver. Thus, low level of controversy provides a unify evidence of the message whereas high levels of controversy enhances confusion on the receptor. Nevertheless, we are not able to conclude the level of moderation effect size of low controversy.
 - b. On the other hand, in the viral marketing context, we show that high controversy has negative moderate effect in the relationship between message credibility and message adoption

Marketers need to understand how to maximize the usage of viral marketing. The emergency of viral marketing as cost effective and massive impact tools has boosted the interest of electronic word of mouth and on critical factors for an effective viral campaign.

Recent research shows that Content factors such as Format, Storytelling, Testimonial and Emotional Charge, have an impact on message credibility (Holbrook and Batra, 1987; Godes and Mayzlin, 2004; Woerdl, 2008; Metzger et al., 2010; Ho and Dempsey, 2010; Berger, 2013; Voltz and Fritx, 2013; Shoeb and Khalid, 2014; Berger and Milkman, 2010)

In addition, there is a variety of studies stating the influence of emotions, and particularly of arousal emotions, on message adoption and in particular, on virality. (Berger and Milkman, 2011; Dobeles et al., 2007; Berger, 2013).

Moreover, there are a few recent studies concluding that controversy has an influence on message adoption (Saxena et al., 2012; Chen and Berger, 2013). Even though, these studies reach different conclusions.

Our study provides a better understanding of the critical factors around one of the effects of message adoption: virality. Our research shows a global view as it covers the author, media, message and the customer. First, we study the influence of author/media credibility, and content dimensions on message credibility. We identify the content dimensions as format, storytelling, testimonial and emotional charge. Second we study the influence of message credibility on message adoption. Third we study the mediating influence of arousal emotions on message credibility for message adoption. Our fourth goal is to study the influence of moderation effect of controversy on the relationship between message credibility for message adoption.

The current study follows an integrated model approach, by defining a conceptual framework and a proposed model to be tested. Regarding the conceptual framework, our hypothesis is that the author and media credibility, format, storytelling, testimonial and emotional charge content influence message credibility. The proposed model states the

influence of message credibility on message adoption, with emotions working as mediator and controversy as moderator. As for the message adoption, we will analyze one of its effects: virality.

For that purpose, we conduct an empirical field data from a mainly video marketing viral campaign, in order to test the conceptual framework and the model we have defined for message adoption

Our findings make several contributions to the existing literature and confirm some of the previous conclusions in online viral marketing (mostly video based) context. Consequently with reviewed literature, our research confirms that author credibility and media credibility have a high influence on message credibility, in the viral marketing context. Both author and media credibility influences the receiver on his peripheral decision process on internet (following the heuristic-systematic model applied to the adoption model processing on internet, Chaiken, 1980).

Furthermore, consistent with the heuristic-systematic process (Chaiken, 1980), message content of the viral marketing campaign is critical for message adoption on internet. Specifically, we underscore that format, testimonial, storytelling and emotional charge have a significant influence on message credibility. As a new finding, we conclude that storytelling has a high effect on message credibility. That finding could be argued as the storytelling engagement raising the receiver's interest by evoking a real experience

As pointed out in our findings, emotions play a mediating role, since emotion contents increase our interest and surprise, therefore boosting virality. Our findings show the high mediation effect of high arousal emotions (happiness, fear and anger). We argue that such arousal emotions, in the online video viral marketing campaigns, generate significant and partial activation and for that reason improve the message adoption. From our results, we cannot conclude that non-arousal emotions (sadness) are less viral. Our findings show that high controversy has no moderation effect in the relationship between message credibility on message adoption. This finding indicates that high controversy does not increase discussion at least in the viral marketing campaign context where the testing has done. Furthermore, we find out that low controversy acts

as a moderator, intensifying the influence of message credibility on message adoption. We assume that people want to be socially accepted, worry about others' opinions and follow social proof messages.

6.2. *Academic implications*

Our research provides several contributions for the existing scholarly understanding of the viral phenomenon.

First, this research provides a deeper understanding of viral marketing phenomena, showing an exhaustive and up-to-date literature review from many different disciplines: the communication process methodology (Berlo 1960, Chaiken 1980), the message credibility theories (Metzger, 2007), information adoption theories (Sussman and Siegel, 2003), content factors (Holbrook and Batra, 1987; Godes and Mayzlin, 2004; Woerdl, 2008; Metzger et al., 2010; Ho and Dempsey, 2010; Berger, 2013; Voltz and Fritx, 2013; Shueb and Khalid, 2014; Berger and Milkman, 2010), arousal emotions theories (Bagozzi et al., 1994; Stein, Liwag, and Wade, 1997; Edell and Burke, 1987; Holbrook and Batra, 1987; Richins, 1997; Berger and Milkman, 2013, Berger and Schwartz, 2011) and controversy theories (Saxena et al, 2014, Chen and Berger 2013)

Second, this research assists in setting up a complete model for message adoption for the online video viral marketing context. In doing so, different relationships for message adoption are defined, including components of the communication process (author, media, content) in the context of an online video viral marketing campaign.

Third, this research provides an advanced scholarly understanding of the video content effect on message credibility. This significant contribution is due to an empirical analysis of a viral marketing campaign (mainly based on video) in order to test the defined model. Previous studies mainly use text message field data to test this hypotheses (Godes and Mayzlin 2004; Berger and Milkman, 2010; Berger and Schwartz; Berger, 2013).

Thus, we examine the effects of content descriptors such as format, testimonials and story and emotional charge that have not yet been extensively researched on the video content side. We explain how these factors impact the message credibility. Additionally, we demonstrate that storytelling highly influence message credibility. In online viral marketing campaign context, we conclude that the emotional charge has a low effect on message credibility, less influence than the one stated by several authors in other contexts (Shoeb and Khalid, 2014; Berger, 2003),

Fourth, this research broadens the arousal emotion implication (using both text and video content) by defining a mediation effect of arousal emotions to the relationship between message credibility and message adoption. We state that arousal emotions have a significant mediating effect on the relationship between message credibility and message adoption. Consistent with previous research (Berger, 2013, Berger and Milkman 2012), in the viral marketing context, we confirm that happiness, anger and fear have a partial effect on the relationship between message credibility and message adoption. We confirm the previous research on high arousal conclusion through a viral marketing campaign field data testing.

Fifth, our research provides an original contribution by describing the moderation controversy effect in the relationship between message credibility and message adoption. Within the context of online viral marketing campaign, we claim first that high controversy has no effect on the relationship between message credibility and message adoption. Second, we observe that low controversy has a moderation effect on that relationship, in the context of online viral marketing campaign. In the context analyzed, controversy has different role than previous studies (Saxena et al., 2012, Chen and Berger, 2013). Nevertheless, based on our results, we are not able to measure the size of the low controversy effect.

Sixth, our research improves the merging of recent studies (Saxena et al., 2012, Chen and Berger, 2013) on the complex measuring of message adoption by using one of its outcomes: virality.

6.3. *Managerial implications*

Nowadays, marketers often try to benefit from social transmission, electronic word of mouth, as we are in an always-on society. In addition, social media are a worldwide and cheap channel. Therefore, more and more viral marketing campaigns are launched. Although the key question for marketers revolves around what the success factors of a viral marketing campaign are in order to reach the target. The goal of a viral marketing campaign is to maximize the number of impacts and to achieve the message adoption. Our research sheds some light on what the main critical factors are for a viral marketing campaign to be effective. This research defines a conceptual framework and a model for message adoption including overall communication factors (author, media, content and receiver) allowing marketers to better define a viral marketing strategy and maximize their advertising campaign.

One of the current challenges marketers have is content management and the use of video in marketing campaigns. In the new environment, the end user becomes the creator of content as well as the decision-maker on contents to be spread. First, this study describes content drivers, mainly related to video content, using end user content field data.

Second, this research helps marketers understand the impact of message credibility on message adoption, the mediating effect of arousal emotions and the moderation effect of controversy. Besides, our findings shed light on how to design contagious contents. Marketers should consider the design of emotion-driven, storytelling-based contents with low levels of controversy..

Additionally, this research confirms the high effect of author credibility and media credibility in the message credibility of text/video viral marketing campaigns. That conclusion helps determine how to select right and highly credible authors and media in order to achieve the expected message credibility and to influence message adoption as ultimate goal.

Marketers continuously try to differentiate their marketing campaigns. Our findings tell marketing content designers about arousal emotions. Arousal emotions (mainly

happiness, anger and fear) intensify the influence of message credibility on message adoption. We conclude that designing marketing campaigns with high arousal emotional content (either positive or negative) will provide better results in message adoption.

Moreover, we provide marketers a new viewpoint about controversy influence. We recommend marketers to avoid launching highly controversial viral campaigns, as we conclude that such a type of controversial content reduce the relationship between message credibility and message adoption. Our results also suggest that low controversy positively moderates the relationship between message credibility and message adoption.

In conclusion, this research helps marketers better understand the viral factor in a marketing campaign (stressing what -content strategy-, and how –author and media-).

6.4. *Limitations*

Our research is based on field empirical data including human coders to rate. Thus, robustness could be considered as a limitation for this study. Nevertheless, according to previous studies (Thelwall, Buckley, Paltoglou Cai, and Kappas, 2010; Scharkow , 2013), sentimental automatic tools are not currently prepared to code messages for the descriptors we have analyzed. These studies show that the average correlation between automatic sentiment analysis and human raters are similar ($r = .5$). Besides, we have applied the human coding measurement used in recent studies about message analysis on electronic word of mouth (Berger and Milkman 2012, Chen and Berger, 2013, Berger, 2013). Finally, homogeneity due to the correlation ($r=.68$) is guaranteed.

Since our qualitative research is based on a single viral marketing campaign, we could say that it is a small sample. Nevertheless, we show that this campaign's volume in terms of electronic word of mouth (3,251) messages and visualizations (6 millions) allows us to test the hypothesis and to reach conclusions.

In order to measure emotions, we have used a limited number of emotions and basic clustering emotions. Nevertheless, we have mainly chosen limited emotions considered by previous studies as arousal emotions (Berger and Milkman, 2012). Regarding the limited number of basic emotions used for the clustering, we follow the latest studies on emotion clustering (Romani, Grappi, and Dalli, 2012, Berger and Milkman, 2012)

Furthermore, we have mainly used a limited number of social media in our research (Company Web site and Youtube), excluding other media on internet such as Blogs or social networks such as Facebook. The main reason is that the viral marketing campaign used for analysis is based on both these media. However, today viral campaigns mostly resort to Youtube videos as the main media. Therefore, findings in this research provide a good understanding of video viral marketing campaigns.

6.5. *Direction for future research*

A number of questions deserve further exploration. First, future research might explore viral marketing critical factors, studied in this research, in the mobile viral environment, as nowadays mobiles play a new role in the exchange of information and in the message adoption. Second future research might also complement our research using another type of viral marketing campaign (for example with more positive messages, with other internet media such as Facebook, Blogs, other authors such as expert bloggers, ...) to test our findings and our model for message adoption .

Future work might examine the size of controversy effects, analyzing different levels of controversy, including moderate levels of controversy (Chen and Berger, 2013). Besides, it would be helpful to explore the arousal effect of emotions by extending the range of arousal emotions, mainly to positive ones.

As an extension in the scope of the current research, we realize that marketing campaigns are normally blending offline and online tools. Therefore, future research could examine the offline versus the online influence of message credibility and message adoption.

On one hand, the analysis of further message adoption effects such as brand affection could also extend the scope of this research. We propose the analysis of brand affection in terms of how emotions influence brand and the brand activation effect of viral marketing campaigns (brand complains, brand switch).

On the other hand, future research could also examine seeding strategies, influencing on message credibility and message adoption, following recent studies conclusions (Goldenberg, Han, Lehmann, and Hong, 2009; Shoeb and Khalid, 2014; Saxena et al., 2012; Hinz, Skiera, Barrot, Becker, 2011)

The study of field data regarding online opinions are going to be increasingly used in future research. Social media marketing is going to be a research topic in next years. Accordingly, the increase usage of social media will produce a large amount of data of customer insight. That amount of information will leverage the new future Big Data solutions and precisely the Sentiment Analysis and Opinion Mining tools to understand the customer inputs and to make decisions. These sentiment analysis tools will be more and more used in research. In addition to that, Big Data and massive data analytics will be required to be able to digest the huge amount of electronic word of mouth so as to figure out customer insights on internet.

1. Big Data

Massive information generated by electronic word of mouth and the requirement to understand customer responses, lead us to the concept of Big Data and cloud computing. Today, three phenomena are moving at huge speed: social media (eWOM), mobile devices and cloud computing – Big Data-. We deal with a large amount of data which cannot be transformed in decision-making tools. More and more users are spreading out their feedback based on opinions (WOM) available for everyone, everywhere, at any time thanks to internet and mobile devices. Today, there are some customized tools that allow us to track the brand perception on internet, without covering what marketers need. Marketers need to access this eWOM information in order to analyze and take decisions regarding their marketing campaign on internet.

Big Data is evolving through new tools such as Data Warehousing, Data mining on the Cloud and data analytics. We will be able to analyze a huge amount of data in a meaningful way quite soon. Nevertheless, the methodology to analyze such data is not ready yet, as previously mentioned in the sentiment analysis. Google and Twitter allow us to show a partial vision of what is going on in the network. However, a tool to gather, analyze and give us clues for decision making on eWOM generated via a viral marketing campaign is not available. There are huge opportunities on the market and for research as well. Once a valid method established, we should be able to obtain useful results from the eWOM using Big Data and to track results of viral campaigns using Big Data Tools (Merja, and Scharkow, 2013).

2. Sentiment Analysis - Opinion mining:

Measuring tools for content management are evolving. Sentiment analysis (also known as opinion mining) and its tools, refers to the use of natural language processing, text analysis and computational linguistics to identify and extract subjective information (such as emotions, controversy, credibility in eWOM) in source materials. Generally speaking, sentiment analysis aims to determine the attitude of a speaker or a writer with respect to some topic, or the overall contextual polarity of a document. Opinion mining and sentiment analysis actually focus on polarity detection and emotion recognition, respectively. Both fields use data mining and natural language processing (NLP) techniques to discover, retrieve, and distill information and opinions from the World Wide Web's vast textual information. Sentiment analysis researchers struggle with NLP's unresolved problems: coreference resolution, negation handling, anaphora resolution, named-entity recognition, and word-sense disambiguation. These technologies are limited to polarity evaluation or mood classification according to a limited set of emotions. Such methods mainly rely on parts of text in which people explicitly express emotional states. Therefore, the existing tools today cannot capture a reviewer's implicitly expressed opinion or sentiment. As explained in the methodology section, sentiment analysis tools have not reached an accurate level yet so as to provide the expected results (Thelwall, Buckley, Paltoglou, Cai, and Kappas, 2010; Scharkow, 2013).

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