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Bachelor Thesis

Facebook use and Social Comparison, Envy and Self-Esteem

By

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DECLARATION I hereby declare that no portion of the work referred to in this thesis has been submitted in support of an application of another degree, or qualification thereof, or for any other university or institute of learning. I declare that this thesis is my own independent work. All sources and literature are cited and included.

In Prague 28th of June, 2018

Signature: _____
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Abstract

The purpose of this thesis paper is to present an overview of current research dealing with the negative psychological effects of Facebook and under what conditions these effects are manifested within the framework of social comparison theory . The problem of Facebook usage and its effects is significant because of the massive rise in the number of users, and the amount of communication and interaction that has moved to the virtual sphere, coupled with the rise of social anxiety and depression. Connecting these elements is difficult because of the extreme variety in results from different surveys, and the lack of meta-analyses. We believe there is not nearly enough (or really any) literature that attempts to unify and synthesize the various results in a method that would be based the general consensuses regarding certain categories of usage and effects. For this reason, I will attempt to provide in my thesis paper an overview of the research that has been done up until now. I have selected seven studies that deal with similar issues from various perspectives and in different geographic and age categories in order to find a pattern of results. Most of the surveys conducted emerged from users reporting certain effects in combination with type of usage, and are based on theories regarding social rank and hierarchy. It appears that Facebook is negative mostly in the cases of heavy passive usage, and depending on individuals' predispositions to emotions such as envy, their level of self-confidence, and psychological disorders. The structuring of Facebook encourages a section of users to spiral into a deep lack of well-being while also inducing addictive qualities that manifest other stress-inducing factors. These findings are also significant in terms of their influence on the societal perception of social media and possible techniques for at-risk users to improve their activities on social media with the aim of producing positive rather than negative effects.

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Introduction

Technological developments and innovations have been a constant in human history and they have sometimes taken place at an exponential speed, generating countless products that make life easier than ever before. As a society, we have become increasingly dependent on these new products and technologies that change our lives in unpredictable ways. Communication through language is probably the most important and unique human value, a psychophysical capability that separates us from all other living creatures. It can thus be perceived as one of the primary building blocks of society, providing the foundation upon which we stand and develop basis for all the technology we have.

I believe it is important to try to anticipate the changes and effects of technology, and implement basic rules and regulations to accommodate these changes, before they become deeply embedded in our psyche. As a first step, it is necessary to try to understand what causes these changes and effects, and what are their primary results. There are, of course, many other spheres of life and society that are heavily impacted by technology, but because of the narrow scope of this thesis paper, I will focus on one aspect of the radical technological transformation society is undergoing. Namely, I will focus on the psychological effects of Facebook, which is the most widely used social media network in the history of humanity. The enormous and increasing number of Facebook users and the amount of usage has given rise to many speculative articles in the popular media addressing the possible negative effects of Facebook usage. Many base their conclusions on specific studies without including the enormous body of research with a wide range of results that actually exist. Clearly there are many research studies with contrasting and even opposing results, but a consensus has been found on certain issues. This paper will provide an overview of the research conducted until now that concerns itself with social comparison, envy manifestation and their ties with decreased well-being and symptoms of depression, as well as offering an introduction into certain patterns found within this body of research.

Social media was developed originally as a way to connect human beings, and as an instrument: a media to help us communicate and network easier, and thus to further the globalization of our society. And yet, despite new and unimaginable advances in communication, we are currently experiencing, as a society, higher levels of anxiety, loneliness, and depression than ever before. This is a fascinating paradox in our rapidly progressing social system. For this reason, my overview of current research will also present a general assessment of communication in the digital world and its possible effects on individuals that use it. My belief is that it is intrinsically negative to that Facebook provides such a clear and concise representation outlining and scaling the categories that people use to compare themselves to each other. I will focus on this element of potential negative impact in the research overview. Namely: how do social hierarchies, social comparison, and envy influence the well-being of Facebook users? How do these feelings manifest in users?

Outline

As an introduction into how we can even begin to contemplate the popularity of social media and Facebook, I will first define and explore the term “network society” drawing on the book of the same name written by author Jan Van Eijk, which elaborate on the changes in the structure of society that enabled social media to develop and have such a vast influence on our lives. These elements can be summarized as follows: the bureaucratic decentralization of governance and control, the division of communities into smaller, fractured units based on similar interests and ways of life, and differences in our comprehension of time and geographic space. I will then provide a description of the history and development of different social media websites focusing mostly on elements that are now intrinsically essential to our comprehension of Facebook: connecting with peers, instant messaging, and importantly content creation. Finally, I will provide a systematic overview of seven different studies, emphasizing shared conclusions

that mostly deal with the rise and connection of envy, upward social comparison, and the different psychological effects experienced by active and passive Facebook users.

Methodology

Through reviewing a multitude of studies - on the search engine Google Scholar leading to pages such as ResearchGate and ScienceDirect - concerning Facebook and the variety of psychological effects triggered in the minds of users I have developed a personal overview of the trends and patterns of research connected with Facebook use. Seven studies have been chosen to expand upon with the goal of leading the reader through the main problematics of Facebook use which are focused upon envy, social comparison, self-presentation, type of usage and other related issues. The studies are placed in the context of The Network Society concept developed by the authors Jan Van Eijk and Manuel Castells. The information regarding Cambridge Analytica, insider critique and behavioral-psychological trick employed by Facebook was drawn mostly from online news-agencies.

Network Society

The network society is a term that was coined in 1991 by the author Jan van Dijk with the publication of this book: *The Network Society: Social Aspects of New Media*. The term and its meanings were later expanded by the author Manuel Castells who wrote a trilogy called *The Rise of The Network Society*. The network society refers not only to society, but also how individual units within a society interact with each other and form structures. The term suggests that the prime mode of organization and the formation of these structures at the individual, organizational, and societal levels is through new social networks, which differ from social networks in the past having been formed around electronically-processed information networks.

The basis of human interaction is communication with language, a uniquely human physio-psychological ability. Since the development of the Internet, however, communication is increasingly carried out through a digitalized network, sometimes referred to as the information highway. The term “information highway” was popularized in the 1990s and structurally described the network of fiber-optic cables that enable the high-speed transfer of information. The enabling of the transfer of information in a manner that transcended time and space to a previously unimaginable degree is the foundation of the communication revolution and the social side effects researched in this paper.

Traditionally society formed around vertical layers of bureaucratic organizations that had clearly marked centers and sharply formed communities both of which dictated a clear social structure and outlined social positions. According to Van Dijk, four elements increased the need for information and communication media in developed economies: scale extension and production processes, an increase in the division of labor and the complexity of organization, a rise in the standard of living, and the importance of information production that once started began to gain its own dynamics. Traditional local collectivities that had been once important and in fact comprised the networks that surrounds individuals like communities, such as extended families and large bureaucracies, became even more fragmented with the shift toward communication via the information highway. This social shifts results in scale extension (nationalization and internationalization) with scale reduction (smaller living and working environments). In other words, individuals still make use of the traditional units if they exist, but also frequently move around large-scale social networks digitally that are much more diffuse then traditional ones.¹

¹ Van Dijk, J. (2005). *The Network Society, Social Aspects of New Media* (pp. 36). London: SAGE publishing.

Daily living and working environments became more heterogeneous and smaller, while division of labor widened, and mass media and interpersonal communication extended, causing the network society to expand. One of the ways in which the new era of communication and information is distinct from the era in which mass media evolved is the categorization of the audience. With mass media, the audience was homogeneous and received a limited amount of messages. Today there is an intense multiplicity of messages and sources, with the audience becoming more selective and segmented, and choosing the messages from a variety of sources that fit their unit and preference. This development enhanced the individual relationship between sender and receiver.²

Individuals are generally withdrawing into their own, even smaller, households while participating in communities with no geographic proximity enabled by the network society and the large-scale social media networks in contemporary society, and this forms a new area of public space.³ One of the most important characteristics of the network society is the “dissolving of boundaries between the macro, meso, and micro levels of social life, between the public and private sphere and between the spheres of living, working, studying, recreating and travelling.”⁴ Because of the increased access individuals have to a digitally structured network of units in contemporary times the time-space relations we once had in terms of communication have radically changed. Throughout history changes in time-space comprehension have always triggered communication revolutions. Communication revolutions may be divided into structural and technical revolutions, and the structural aspect of any communication revolution is that which influences and normally bridges space and time in a completely new way.

² Castells, M. (2009). *The Rise of The Network Society* (pp.368). New Jersey; Wiley-Blackwell Publishing.

³ Van Dijk, J. (2005). *The Network Society, Social Aspects of New Media*. (pp. 170). London: SAGE publishing.

⁴ Ibid p. 173

The spatial dimension in the digital communication revolution is manifested in “the detachment of society from geography.”⁵ Global media networks spatially enlarge society through the globally interconnectedness of the communication network and thus essentially reduce the size of the world. Throughout history we have distanced ourselves from natural time by following the societally constructed clock time. Today time and space is clearly bridged with direct communication in real time with any individual or unit located anywhere on this planet.⁶

The communication revolution we are now experiencing began during the first decades after the Second World War when large computers began to serve as data processing units and satellite telecommunications were created. In the 1960s, the more powerful computers were introduced that served as communication and interactive information manipulators, and significantly were connected into a network. Gradually, smaller personal computers were introduced onto the market, which over time and generations became even smaller and more potent technologically, and most importantly part of fully interconnected networks.⁷ Today it is normal in “developed” and “undeveloped” societies alike that many people own cellular phones or even smartphones that connects them both to the closer units of their narrow community and to the vast number of other units in an extensive network of communities around the world. Social and media networks in contemporary society create small units, clusters that are connected with each other through a short chain of intermediaries, which creates the illusion that all units are connected with each other.⁸ These units are in fact small worlds to themselves that are much more specialized and thematic than previous communities. They act as if they can communicate with each other, despite the fact that interactions are purely local interest-wise, which is how order emerges in a newly decentralized society.⁹ Society is perceived as becoming more

⁵ Ibid p. 168

⁶ Ibid p. 5

⁷ Ibid p. 5

⁸ Ibid p. 33

⁹ Ibid p. 31

decentralized because there are fewer clear and singular centers in the economy, politics, government, culture and community life precisely because of our intense interconnectedness and the increasing knowledge of these alternative activities and structures.¹⁰

A network may be defined as an open system with at least three closed systems. The closed system is a unit that needs three closed systems to create a network.¹¹ A unit can in fact be an individual, a pair of individuals, or any larger organized form. The network is seen as the social counterpart to individualization in the sense that each elements function autonomously yet in cooperation with others. Thus organizationally corporations and institutions are no longer working alone and are connecting among each other.¹² Paradoxically this encourages globalization and socialization, while on the other hand promoting localization and individualization through the development of smaller closed units that are connected among themselves. Despite the heightened connectivity, individuals must fight for a particular place much more intensely in an individualized network society. Individuals must show their value for every network otherwise they may become isolated or excluded from the network. Therefore individuals must stand firm. Solidarity tends to decrease with the rise of connectedness.¹³ The development of social media is a clear and traceable result of the network society. Connections formed on the information highway between individuals are a graphic representation of a new form of social interaction and public virtual sphere that cultivates its own communicative and perceptive dynamics of intrapersonal contact.

¹⁰ Ibid p. 36

¹¹ Ibid p. 30

¹² Ibid p. 29

¹³ Ibid p. 36

History of Social Media

Social media are websites and applications that enable users to create and share content, modify their ideas in virtual communities, and participate in social networking. Users primarily generate and exchange content, rather than consuming content which is the priority of other internet activities.¹⁴

Today we perceive social media as more than just a way of communicating, but a virtual and digital sphere of life: a public space. In this history of social media, I will not go back and explore the first communication network that was the seed from which the World Wide Web grew. Because social media is the formation of online communities, I will start with the first websites that resemble a communication sphere not designed for practical purposes, but as a virtual place to spend time and casually connect with peers by sharing content based on shared interests and tastes. The formation of these online communities and their effects is our focus here. Community is an essential component of human existence, and, for some people, the gradual development of online communities became their primary real communities. What we present here is not a comprehensive history because we will only discuss the most influential and important social media innovators will be named.

The first social media website was called Six Degrees based on “the six degrees of separation” theory. It became prominent in 1997 and lasted until 2002. The theory of six degrees of separation was influential in its structuring in the sense that users would list all their friends, family members, and acquaintances both on the network and off. Users were then encouraged to send messages, post bulletin

¹⁴ Tat, U. (2014, June 25th). *Social Media and Its Effects on Individuals and Social Systems*
Retrieved from
<http://www.toknowpress.net/ISBN/978-961-6914-09-3/papers/ML14-714.pdf>

board items and content to people in their first, second, and third degree, as well as to observe the connections of other users on the site and browse their profiles. Users were encouraged to build their profiles based on interests, thoughts, and hobbies, as well as to form groups and invite listed friends and acquaintances who were not yet users. At its height, the site had around 3,500,000 fully registered members. It was the first website on which individuals built their own profile, their own virtual representation, their own virtual face. ¹⁵

During this period, the website Classmates appeared and is still operational today. As its name suggests, it encourages people to reconnect with their old classmates. This was not a website where members had profiles. Its significance was introducing the element of “reconnection”.

Friendster was a website that used a similar concept as the Six Degrees web site, but was framed as a dating site where people could list their interests and attempt to connect with people whose interests matched. Within a year of its start Friendster had over three million registered users. ¹⁶

In 1997, AOL, the first large instant messaging site emerges which also allowed users to create profiles. The addition of instant messaging became the foundation of Facebook, so in this way, AOL can be viewed as the most significant precursor to Facebook. Each of the sites enumerated above had certain elements that would later be converted into a potent and addictive combination creating a new layer of our social life. ¹⁷

¹⁵ *The History of Social Networking: How It All Began!* (2016, February 13th). Retrieved from <https://1stwebdesigner.com/history-of-social-networking/#history-of-networking>

¹⁷ *The history of social networking.* (2016 May 14th). Retrieved from <https://www.digitaltrends.com/features/the-history-of-social-networking/>

In 2003, MySpace launched. It was inspired by Friendster and mimicked some of its more popular features, like the building of a profile, bulletin boards, and allowing contact with other users. MySpace was built around the concept of sharing of music videos and music, and had many entertaining features. Its popularity increased intensely because of the freedom of customization it offered. MySpace had 90 million users at its peak.

In 2004, the combination of reconnection, finding friends of friends (thus utilizing the concept of degrees of separation), building and browsing other profiles, sharing music and interests, and fully engaging with other users through instant messenger chat as well as audio and video communication was all combined together to create Facebook. Facebook was initially a site made exclusively for Harvard students, and users had to be invited by a member to participate. A 'face book' was a student directory featuring photos and basic information on paper, which is where the name came from. Mark Zuckerberg, the founder of Facebook, was a student at Harvard and conceived of an online connecting site exclusively for Harvard student, but later opened it to other top American universities as well. By May 2005, many individuals and organizations already sensed Facebook's broad appeal and invested millions into the development of Facebook. In 2006, Facebook was open to anyone over 13 years of age with a valid email address. It also had over 100, 000 business pages, a novelty that encouraged companies to use Facebook to promote themselves and attract new customers. According to a study by Nielsen, in 2011, Facebook was the second most accessed site in America, following Google.

As of 2018, there are 2.13 billion active Facebook users and this number increases on average by 14% every year. It is now common for other sites to be connected with Facebook. If a user like a site, he or she may press the "like" button located on the external site and the activity will be logged onto his or her user profile. These "like" or "share" buttons on external sites are viewed on 10 million websites daily. Approximately 300 million photos per day are posted on Facebook,

510,000 comments are posted, 293,000 statuses are updated, and 136,000 photos uploaded each minute. For fifty percent of users, Facebook is the first website they open in the morning.¹⁸

Obviously, Facebook has succeeded in integrating users' lives to a massive extent. It has become the main site for sharing events, building businesses, and advertising products. Because of its incredible popularity, extensive research has been performed recently to measure psychological effects on users and explore issues of privacy. It is essential that we also touch upon technological-behavioral-psychology strategies employed by social media platforms, as well as economic incentives for the development of addictive technologies. These elements of social media platforms provide the reasons why consumers or users of social media become so fully engaged. This comprehensive engagement leads to undesirable individual psychological effects, the understanding of which is the primary goal of this thesis paper.

Big Data and Privacy Issues

Facebook is essentially an advertisement agency. In 2007, Facebook developed a set of functions that enabled third parties, or external websites, to make applications that supported Facebook's integration across the web by connecting Facebook to other services and platforms.¹⁹ By accepting the user Terms & Conditions, users voluntarily release all of their data, including private chats, most of their basic data, profile information and activity log that is collected and stored by Facebook. Users must agree to the Terms of Service (ToS) in order to use the service. ToS are not laws but rather fall in a gray area where interested parties are resetting the norms for privacy, property, and appropriate behavior. They do this by denying services to users who deviate from certain rules. At the

¹⁸ *The Top 20 Valuable Facebook Statistics*. (2018, April). Retrieved from <https://pdfs.semanticscholar.org/5db0/58de2e3637febb07b759a08d4e6cac0f1955.pdf>

¹⁹ Turkle, S. (2011). *Alone Together*. (pp. 58), New York: Basic Books

same time, they formulate privacy policies, their side of the bargain so to speak, in such vague terms that users are unaware of any breaches of policy.²⁰

Once users make an account on Facebook, all the data on their profiles as well as in groups and pages users “like” are recorded and stored for an unknown amount of time. The reason the data is stored is so that it can be sold to third-party sites to be used for academic or commercial purposes. Facebook’s privacy regulations have quietly changed over time, chipping away at the rights users have over information they might not want to divulge to the “non-friends” who search for them. This shift emerged from the original promotion of Facebook as a platform connecting people within a social network to its current incarnation offering interaction with all virtual life outside Facebook’s territory.²¹ By promoting Facebook and other social media as a platform that connects people, the byproduct of behavioral and pro ling data is produced.²² The type of data is now referred to as “big data” due to the enormous quantities of data being collected and processed. Big data is a technology, a set of algorithms that not only gathers large sets of data, but also analyzes, links, and compares them. Big data processing algorithms can outline trends, patterns, and activity cycles, and send users of Facebook posts, recommendations for connections, and individually targeted offers.²³ Despite ethical questions, representatives of Facebook claim that the collection of data and construction of psychological profiles of its users is done in order to enhance users’ experience and offer a more personalized and compelling experience.

Facebook’s design also makes users feel as if they are connected to a utility of sorts. The urge to remain connected Facebook is intense simply because of its

²⁰ Ibid p. 49

²¹ Ibid p. 59

²² Ibid p. 27

²³ Boyd D., Crawford K. (2012). *Critical Questions for Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon*.

Retrieved from

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.441.9822&rep=rep1&type=pdf>

sheer size and the wide acceptability of the phenomenon. The majority of users' friends are on Facebook, using it as a platform for events. Those who opt out of Facebook, therefore, miss out on being invited to parties, being informed of and participating in events and activities. Those who opt out feel excluded from a presumably dynamic social public life. Moreover, social networks are now the leading spaces for the accumulation of social capital. P. Bourdieu defines social capital as: "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition." Social capital, and the accumulation or lack of it, is clearly visible on social media, and this highlights the negative and positive effects of social media itself.

In online environments like Facebook, the incentive is for people to both show who they are, and who they would like to be. The intricacy of this process of identity construction and the amount of disclosed information are closely linked to popularity on social media.²⁴ Under the guise of users' acquiring social capital, the owners of social media have themselves amassed vast economic capital by settling into business relationships with companies that market a range of services by targeting individuals whose psychological and consumer profile matches the products being sold.²⁵ Facebook claims that its massive data consolidation is completely anonymous. However, if it chooses to, Facebook can technically sell data related to specific individuals, and, in fact, has done so, through applications like Geofeedia that shared data with law enforcement organizations for the purpose of tracking activists at protests.²⁶ Not only does Facebook collect the psychological profiles of its users for various business interests, but it also track the activity and geographic location of users, and where they gather. Since 2011, it has become clear through interviews with senior Facebook employees that the

²⁴ Turkle, S. (2011). *Alone Together* (pp. 59). New York: Basic Books

²⁵ *Ibid* p. 27

²⁶ Nola. (2013, March 13). *Facebook says police can no longer use its data for 'surveillance'*. Retrieved from http://www.nola.com/business/index.ssf/2017/03/facebook_police_data_surveilla.html

company also profiles people who do not even have a Facebook account. This is possible though cookies, tiny programs that are installed on browsers, activated when people visit websites with a Like button or a Facebook plug-in. Cookies track ongoing activity, the times and dates of internet activities, and recognize IP addresses.²⁷

Cambridge Analytica

On March 18, 2018, a news story was published in the media that included information from a whistle-blower and former employee of a company called Cambridge Analytica. The company was founded in 2014 with the intention of harvesting and processing the profiles and data of millions of Facebook users and using it to influence elections. Aleksandr Kogan, an academic psychologist and data scientist based at the University of Cambridge, developed an application in the form of a personality test that collected necessary information on users and their friends and used it to create a database of fifty million individuals and their personality traits. Those who did not directly take the personality test had psychological profiles built around other information that was available, most importantly their “likes”.²⁸ (According to one research study, number and types of “likes” can actually categorize users’ psychological profiles more accurately than their spouses.²⁹) Facebook’s “platform policy” allows this type of friends of friends’ data collection if the data is not sold or used for advertisement purposes. In this specific case, Aleksander Kogan had sold the collected information to a trio of participating companies that up until now have officially denied their collaboration: Strategic Communication Laboratories, the parent company of Cambridge

²⁷ Van Dijck, J. (2013). *Culture of Connectivity: A Critical History of Social Media*. (pp. 62). Oxford:Oxford University Press

²⁸ The Guardian. (2018, March 24th). Retrieved from <https://www.theguardian.com/education/2018/mar/24/cambridge-analytica-academics-work-upset-university-colleagues>

²⁹ The Guardian. (2015, Jan 13th). Retrieved from <https://www.theguardian.com/technology/2015/jan/13/your-computer-knows-you-researchers-cambridge-stanford-university>

Analytica, and IQAggregate, a small company based in Canada that is geographically located outside of UK and US jurisdiction for the precise purpose of legally processing the collected data. Facebook did not insist on the subsequent deletion of the data or investigate how it was used beyond a single e-mail sent to Cambridge Analytica. It turns out that Cambridge Analytica used the combination of the data and algorithms to identify swing voters in the Brexit and Trump elections, and then crafted messages related to specific ideological categories (immigrants, weapon use, climate talks, nuclear usage, etc.). Through analysis of the results of the personality tests, the company was able to identify and target the weak points upon which individuals could most effectively be persuaded, thus taking advantage of their “inner demons”.³⁰

Insider Critique

A number of former employees of Facebook who occupied high positions made shocking statements addressing Facebook’s presence in society. The most prominent among them is former executive Chamath Palihapitiya who left the company in 2011, and had previously been responsible for the exponential rise Facebook’s user base. Palihapitiya reported feeling tremendous guilt over his work at Facebook because he now sees that these tools (referring to other social media platforms as well) are ripping apart the fabric of our society works, in particular by eroding the core functions of how people behave with and between each other. He specifically mentions the absence of civil discourse, the absence of cooperation, and the increase of misinformation and mistruth.³¹

³⁰ The Guardian. (March 17th). *Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach.*
Retrieved from <https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election>

³¹ The Guardian. (December 12th). *Former Facebook executive: social media is ripping society apart.*
Retrieved from <https://www.theguardian.com/technology/2017/dec/11/facebook-former-executive-ripping-society-apart>

Sean Parker, a previous president of Facebook and member of the founding team, acknowledged that Facebook has created a tool that makes use of mechanisms to exploiting vulnerabilities in human psychology. A few key mechanisms are listed below. The primary one is the “like” button, a socially validated feedback loop that delivers a little dopamine hit to the brain encouraging the upload of content and active participation as well as constant tracking of reactions. One likes any photos, status updates, events, organizations and bands with the symbol of a blue thumbs up button. When someone likes any of your activity a red notification symbol appears at the top of your screen. Initially the notification icon was blue as to match the general color design of the page, but later changed to red to stimulating an alert reaction in one’s brain. A third, extremely addictive feature is the pull-to-refresh mechanism where users swipe down to refresh the content that appears, triggering the same variable-reward principle that makes gambling a compulsive addiction. The variable-reward is a psychological need to discover the possible prize behind an action. This is embodied in the notification alert that could be spam or an interesting person liking a user’s status. The need to discover what will be there when users scrolls down their news feed: a fascinating photo or an annoying advertisement, the option of a reward or nothing at all.

Designers, tech entrepreneurs, and programmers educating themselves in behavioral psychology have educated themselves in behavioral psychology, and these addictive psychological tricks have become established mechanisms to which they mostly adhere. They deliberately attempt to build habit-forming products that stimulate compulsion since the success of a product is based on the amount of usage. The goal is to design applications and technology that grabs users’ attention as much as possible for the purpose of maximum sales. As mentioned above, data collected through the usage of these applications is sold onward to data harvesting agencies. Thus, an attention and information economy has been constructed in which economic incentives for product design, development, and distribution resides in the amount of attention and information

stolen from the viewers, which leads to monetary value for the producers but also to long-term psychological harm to the users.³²

Tristan Harris, once employed at Google, is another harsh critic of these principles. In 2013, he took on the somewhat symbolic position of design ethicist and product philosopher, when he wrote and circulated a memo entitled “A Call to Minimize Distraction and Respect Users Attention”. He has now left Google and formed his own company called Center for Humane Technology. The opening page of his memo contains the following statement: “Our society is being hijacked by technology. What began as a race to monetize our attention is now eroding the pillars of our society: mental health, democracy, social relationships and our children.”³³ All of this represents an effort on the part of knowledgeable former employees of tech giants to pressure the technology companies to reform their businesses, and create more humane models and better protection for consumers, and the government to engage in intelligent regulation. They are also trying to create a greater awareness in the broader culture so that we may exert greater control over our digital lives.

³² The Guardian. (2017, October 5th). *'Our minds can be hijacked': the tech insiders who fear a smartphone dystopia*.

Retrieved from <https://www.theguardian.com/technology/2017/oct/05/smartphone-addiction-silicon-valley-dystopia>

³³ Center for Humane Technology. (2013). Retrieved from <http://humanetech.com/>

Part Two: Systematic review of the literature on Facebook use, social comparison, envy and negative psychological effects

Introduction to Part Two

Today more the two billion people use Facebook. Due to its addictive qualities, screen time is increasing constantly, and a general rise in anxiety and depression has also been observed. Researchers have begun to study the connection between the two. In 2010, a study discovered that “five times as many high school and college students are dealing with anxiety and other mental health issues as youth of the same age who were studied in the great depression era.”³⁴

As indicated in statistical data, the Facebook site has become the primary sphere of virtual socialization. The effects of such intense usage are tangible. Many of the issues I encountered while reviewing the different literature resonated with my personal experience and that of my colleagues, and are of the utmost importance in the exploration of the negative effects of Facebook use among youth in today’s digitalized social, political and economic environment. I selected seven studies that are relevant to the connection between social comparison and the subsequent envy. Using these studies, I will explore how these factors may be trigger of depressive feelings and decrease in psychological wellbeing.

As an introduction to the following systematic review, I would like to mention and discuss a 2018 meta-analysis entitled “The Association Between Facebook Use, Psychological distress and well-being among young adults”. The samples in the meta-analysis included a total of 13,929 participants.³⁵ The results of the meta-

³⁴ Tandoc Edson C., Ferucci P., Duffy M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior*, pp. 1. retrieved from

<https://pdfs.semanticscholar.org/846b/59235a7b6f55728e2f308bb1f97a4a6dceba.pdf>

³⁵ Marino C., Gianluca G., Vieno A., Spada M. (2018). The associations between problematic Facebook use, psychological distress and well-being among adolescents and young adults: A systematic review and meta-analysis, p. 4. *Journal of Affective Disorders*.

analysis, including controls for publication biases, clearly demonstrated that problematic Facebook use is connected with signs of psychological distress such as anxiety and depression. The research suggested that the addictive-like symptoms presented by problematic users was closely connected to perceived psychological distress and a generally negative effect on wellbeing.

In this paper, I have not dealt specifically with aspects of addiction other than by referring to various behavioral and psychological tricks used in the design to encourage the addiction of Facebook users. In this regard, it should be noted that 24% of Facebook users log onto Facebook a minimum of five times per day,³⁶ 54% of respondents in a recent Webroot survey report some level of addiction to Facebook, and 75% of millennials (people between the ages of 18 and 45) report that they feel addicted to Facebook.³⁷ When we take into account the probable negative effects of Facebook use on the psychology and wellbeing of users, these numbers are worrisome. The question of how this problem can be addressed is a vital one. It may seem easy to simply remove one's Facebook profile, but considering how intrinsically Facebook is now connected to following social and other activities and events, and to maintaining constant contact with friends and acquaintances, not to mention the addictive factors, this may be easier said than done.

A 2017 study carried out in Australia explored the effects when active users gave up Facebook for a short period of time. The researchers took a sample group of 138 active users and instructed roughly half of them to quit Facebook for five days while the rest continued their normal use. Salivary cortisol, perceived stress, and wellbeing tests were given to participants throughout the experiment, and

Retrieved from
<https://www.sciencedirect.com/science/article/pii/S0165032717307012>

³⁶ Remarkable Facebook Addiction Statistics. (2017, May 29th).

Retrieved from
<https://brandongaille.com/42-remarkable-facebook-addiction-statistics/>

³⁷ Social Networking Habits, website removed, retrieved from
<https://www.webroot.com/in/en/about/press-room/releases/social-networking-habits-webroot-research>

participants had to fill out questionnaires regarding mood, loneliness and, life satisfaction in order to analyze the effects of short-term cessation of Facebook.

The study participants who stopped using Facebook reported spending more face-to-face contact with their friends and showed lowered cortisol levels. Despite the feeling of relief and physical wellbeing due to stress reduction, these participants also reported feeling significantly less life satisfaction for a range of reasons, the main one being the sense of missing out of something. Most of these participants reported feeling better after resuming their use of Facebook despite the return of increased stress levels. The results of this study are not conclusive mostly because of the shortness of the period during which participants stopped using Facebook. It is possible that cortisol levels would increase in the non-users after a more extended time period because of the intense feeling of missing out. Despite the results being inconclusive, it has obviously become difficult, despite the positive effects of cessation of use, for Facebook users to stop using the network.

Systematic Review of Studies Connected With Social Comparison and Envy Manifestation

Introduction

During the rest of the paper, I will enumerate and analyze individual studies dealing with the connection between social media (Facebook) usage and psychological wellbeing, and focusing on the connection between social comparison, envy and its subsequent impact on psychological wellbeing. I will present a systematic analysis of six reviews. As mentioned in the introduction to this systematic review, there has been a huge increase in the amount of Facebook usage among the global population accompanied by a worrisome number of reports about the rising amount of social anxiety, depression, and loneliness. Because these developments have occurred simultaneously, social scientist have

tried to link these elements, hypothesizing that Facebook usage, under certain conditions, is a cause of depression and social angst among its users. The studies will all be analyzed within the context of Social rank theory and social comparison theory.

Social Rank Theory

Used in the context of this survey, social rank theory is defined as a theory of depression that concerning itself with competition. In the case of contemporary humans, competition is not so much for the dominance over food and geographic territory, but more the exertion of “social control over resources where others are going for the same resource.”³⁸ This sort of competition is often observed as a competition for power or attractiveness. Empirical studies focused on the behavioral manifestation of social rank theory have shown that the most common emotions triggered, which are in fact central to its functioning, are a feeling of threat and subsequent inferiority.³⁹ It is shown that perceived rank impacts the individual as much as actual rank. Perceived rank reflects the capability of attracting the investment of others, as well as their admiration and attention. When a sufficiently high rank proves to be unattainable, or at least not in accordance with expectations, and the goal is thwarted hopelessness and depression often ensue.⁴⁰ This is reflected in a heightening of dominance when comforted by subordinates and a heightening of submissiveness when encountering dominance. In other words, neural circuits and linkages reflect the emotional, cognitive, and behavioral components of rank-related social interactions.⁴¹

Okomentoval(a): [ED1]: This doesn't make sense to me.

³⁸ Tandoc Edson C., Ferucci P., Duffy M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior*, p. 2. retrieved from

<https://pdfs.semanticscholar.org/846b/59235a7b6f55728e2f308bb1f97a4a6dceba.pdf>

³⁹ Beasley M., Sabatinelli D., Obasi E. (2012). Neuroimaging evidence for social rank theory. *Frontiers in Human Neurosciences*.

Retrieved from

<https://www.frontiersin.org/articles/10.3389/fnhum.2012.00123/full>

⁴⁰ Ibid.

⁴¹ Ibid.

Social Comparison

Social comparison is recognized as a fundamental human drive that serves the function of evaluating the self, fulfilling affiliation needs, regulating emotions and wellbeing, and becoming inspired. Upward social comparison occurs when we compare ourselves with individuals we believe to be superior in terms of positive characteristics, and downwards social comparison occurs when we compare ourselves with individuals we believe to be inferior in terms of negative characteristics.⁴²

In the context of the social comparison theory, people who perceive that themselves as having not succeeded, or perceive themselves to be low on the social hierarchy ladder, will feel subordinate to others and are vulnerable to depression.⁴³ Social media—which essentially provides clear graphic representations of categories like number of friends, number of photos, attractiveness, romantic status, sophistication of interests, participation in events and social integration, networking, etc.—can be an extremely difficult situation for young people in contemporary society where there is such intense emphasis on competition, individualism, and social status. This presentation of concise digital comparison, which never existed before social media, encourages individuals to constantly rank themselves subconsciously and this can have unhealthy psychological effects.

Impression Management

⁴² Vogel E., Rose P. J., Roberts L. (2014). Social comparison, social media, and self-esteem. *American Psychological Association*, p. 2.
retrieved from
https://www.researchgate.net/publication/275507421_Social_comparison_social_media_and_self-esteem

⁴³ Tandoc Edson C., Ferucci P., Duffy M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior*, p. 2.
retrieved from
<https://pdfs.semanticscholar.org/846b/59235a7b6f55728e2f308bb1f97a4a6dceba.pdf>

The design of social media itself encourages people to present themselves as a marketable product, in the sense that they concisely define or presenting their image in society, their interests, hobbies, and passions. Users of Facebook present themselves to a large social circle of family, friends, and acquaintances. Users strive to combine a desirable self-image without relying too much on deception as many people being targeted know users personally.⁴⁴ This often leads to selective self-presentation, honest, yet not complete. Self-affirmation involves the act of subconsciously focusing on information in the environment such social roles, meaningful personal relationships, and values. This satisfies the fundamental human need of reminding ourselves of our self-worth, of who we are, what makes us valuable, and what is important to us.

The result of impression management on social media is that users who subconsciously compare themselves with other Facebook users encounter a distorted web of peers, profiles that cause users to engage in upward comparison rather than downward comparison. In all of the included studies included in this thesis, upward social comparison mediated by feelings of envy has been found to lead to negative wellbeing and depressive symptoms.

Facebook Envy

Envy in itself has been argued to be one of the most instinctive and innate emotions that humans experience. Envy usually occurs when another person has something we want but cannot obtain. Envy should not be confused with jealousy or longing. Due to the reported increase in envy based on the consumption of other people's content on Facebook, the term "Facebook envy" has been coined. Facebook envy has been found to lead to decreased life satisfaction and, over

⁴⁴ Toma L. Catalina (2013), Feeling Better But Doing Worse: Effects of Facebook Self-Presentation on Implicit Self-Esteem and Cognitive Task Performance, p. 3, Media Psychology, retrieved from https://www.researchgate.net/publication/262873576_Feeling_Better_But_Doing_Worse_Effects_of_Facebook_Self-Presentation_on_Implicit_Self-Esteem_and_Cognitive_Task_Performance

extended periods of time, to a chronic focus on social inferiority, which in turn lead to depression.⁴⁵

The difference between types of envy was defined as follow in the last study by Krasnova H. we reviewed: "On the positive side, benign envy was shown to lead to learning, motivation, better performance, and achievement. On the negative side, malicious envy leads to desire to harm the envied object and breeds hostility."⁴⁶ Interestingly, envy is found to be most commonly manifested when we compares ourselves to someone in a similar age, gender, and general socio-economic background. Due to how Facebook functions with the majority of Facebook friends being actual friends or distant acquaintances and therefor in similar age, gender, and general socio-economic categories, this is another objective element that causes envy and social comparison to be a deeply entrenched side effect of Facebook use.

Okomentoval(a): [ED2]: Klara: you need to say which study. I have no idea

Self-Esteem

Self-esteem is the extent to which we evaluates ourselves as negative or positive, worthwhile and competent. It is an emotional evaluative component of the broader sense of self and serves many social and existential functions. Importantly, it is both a fluid trait, responding to daily events and contexts, and a stable trait that has been constructed over time.⁴⁷

⁴⁵ Tandoc Edson C., Ferucci P., Duffy M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior*, p. 3. retrieved from <https://pdfs.semanticscholar.org/846b/59235a7b6f55728e2f308bb1f97a4a6dceba.pdf>

⁴⁶ Krasnova H., Wenninger H., Widjaja T., Buxmann P. (2014). Envy on Facebook: A Hidden Threat to Users Life Satisfaction? *Institute of Information Systems*, p. 2. Retrieved from <https://www.semanticscholar.org/paper/Envy-on-Facebook%3A-A-Hidden-Threat-to-Users'-Life-Krasnova-Wenninger/b775840d43f9f93b7a9031449f809c388f342291>

⁴⁷ Vogel E., Rose P. J., Roberts L. (2014). Social comparison, social media, and self-esteem. *American Psychological Association*, p. 3. retrieved from https://www.researchgate.net/publication/275507421_Social_comparison_social_media_and_self-esteem

In terms of wellbeing as it relates or is caused by social media, a connection is often made between social comparison, heightened envy and lowered self-esteem, and the potential for depression and lowered levels of wellbeing.

Facebook Usage

For the purpose of the subsequent survey and analysis, it is important to differentiate between two types of Facebook use. In three of the seven studies, the modals proposed always involved the differentiation between passive Facebook use, or surveillance, and active Facebook use. Active Facebook use is defined as using the site mostly for communication and participatory activities, such as posting pictures, statuses, producing content, commenting and liking, and was originally the essential point of the creation of social media. In some cases, active Facebook use actually appear to increase wellbeing. Passive Facebook use, or surveillance, is character by the user a silent and inactive observer. This has been shown to be a crucial factor in how Facebook can trigger negative wellbeing and depression.

In the previously mentioned book *Alone Together* by Sherry Turkle, one adolescent said the following about how it felt to surveil peers: "Its creepy because It's like listening to a conversation that you are not in, and after stalking I feel like I need to take a shower." In this work, one college freshmen was quoted on her research of the new "interesting people" she goes to class with: "I spend all nights reading peoples walls. I track their parties. I check out their girlfriends."⁴⁸ Facebook stalking is a form of social transgression that technically does not transgress since the infrastructure of Facebook enables users to follow other people's activity. Additionally, social norms have changed to such a degree that Facebook stalking is somehow acknowledged and accepted.

Hypothetical Models

⁴⁸ Turkle, Sherry. (2011). *Alone Together* (pp. 252), New York: Basic Books

The seven research studies that I will present in the survey dealing with different aspects of Facebook use that have some connection to social comparison, envy, self-esteem and depression. Despite the fact that come at the subject from different perspectives, a general shared hypothesis seemed to emerge from all the studies and their results. This could be formulated as follows: Facebook use, or more typically passive Facebook use, causes an increased amount of (mostly) upward social comparison which, particularly when augmented by the emotion of envy, causes negative psychological effect such as negative wellbeing, lower self-esteem, decreased life satisfaction, and depressive symptoms.

METHODOLOGY

Preliminary Literature Review

The first step in the survey was selection, beginning with a preliminary review of the articles available on the search engine Google Scholar in order to assess the quantity and quality of articles that deal with issues of social comparison, envy and depression manifestation within the general framework of social rank theory. The second step was to define criteria for inclusion and exclusion criteria in order to narrow down the articles and studies that qualify for the systematic survey. Because the idea that Facebook may cause depression in a structural way is relatively recent, especially within the context of social rank theory, there is not an excessive number of articles that adequately encompass all of the pre-determined key terms. Therefore, the main goal of the preliminary literature review was to assess whether there was a sufficient number of articles and studies to support the subsequent articulation and evaluation of the theory. First I read the abstracts of all of the articles produced in the preliminary search, and then scanned the research in the articles in order to evaluate how relevant the studies were. During this process, I developed and defined standards of

Okomentoval(a): [ED3]: What does this refer to?

inclusion and exclusion standards, and these were applied to the pool of studies that were settled on as widely relevant to be included in the systematic study review.

Standards of Inclusion and Exclusion

Inclusion and exclusion standards were identified through the preliminary literature review. The defined inclusion standards are as follows: studies concluded in the time frame between 2014 and 2018, quantitative studies that were done through a quasi-experimental or experimental type of analysis, studies that were written in English regardless of the origin of the participant sample, limitation acknowledgment included, full text available without purchase, and the relevance of results.

Okomentoval(a): [ED4]: What does this mean?

Exclusion standards were defined as follows: research older than 2014, qualitative studies, studies written in other languages and then translated, abstracts only, theses, books and non-empirical articles. Additionally, I applied quality control standards inspired by *The Guide for Selecting Studies for a Systematic Review* by Timothy Meline of the University of Texas. I applied a number of standards in my systematic survey drawn from Meline's section that dealt with appropriately employed methodology: namely, that the sample size was justified and described including a description of withdrawals and dropouts, that the objectives of the study were clearly described along with intervention tactics, that there be at least one control/comparison group (although this criteria was not applied consistently to with all the studies, because that would have meant that amount of studies would be too small for a systematic review), and that the method of statistical analysis was explained and applied.⁴⁹ Different psychometric scales were applied in the majority of the studies, and the reliability

Okomentoval(a): [ED5]: Is this the correct title?

⁴⁹ Meline T. (2006). Selecting Studies for Systematic Review: Inclusion and Exclusion Criteria. *Contemporary Issues in Communication Sciences and Disorders*. Retrieved from <https://pdfs.semanticscholar.org/a6b4/d6d01bd19a67e794db4b70207a45d47d82f3.pdf>

and validity of those used were evaluated throughout the process of quality control.

Search Strategy and Procedure

The preliminary literary search described above was carried out in order to identify the breadth of results and finalize the appropriate search terms. The search terms were defined as follows: social comparison, social rank, depression, Facebook use/users, psychological effects, and envy. I used two search engines for the final selection of studies to be used: ISI Web of Science and Google Scholar (primarily Google Scholar). These databases were selected because of the vast amount of articles available, and the mostly open access to the articles on offer. I ultimately included seven articles in the survey, the low number being based on the specific nature of the key terms and the defined inclusion standards. Duplicated articles were identified in the search outcomes in the two different search engines and were eliminated, and the remaining articles were carefully compiled. PRISMA guidelines were applied for the review of the studies. Inclusion standards will be referred to in additional detail during subsequent individual evaluations.

Design of Review and Justification

It was decided that the “systematic review” would be the most applicable type of analysis of the papers that were deemed appropriate to be included in the survey , because it would efficiently evaluate and summarize the findings of the relevant individual studies and, if appropriate, could be used to combine the results of several studies to provide more reliable results. The systematic review is considered to be the gold standard of reviews because of the explicit, pre-specified, and reproducible methods that are used to systematically search all

sources of evidence and critically appraise, summarize and synthesize research findings to deal with and address a specific question.⁵⁰

In this case, the question, or objective, is to find commonly accepted connections between passive Facebook use and social comparison and envy within the general context of the social rank theory. Because the defined research objective is so specific and because of the necessity to evaluate a range experimental studies, the only possible design of review can be the systematic review.

Evaluative Tools and Criteria

The aims, methods, and conclusion of individual papers that were selected for inclusion in the systematic review were also critically reviewed using evaluative criteria in order to determine the significance, validity, and value of the research findings. According to a report published by the Canadian Agency for Drugs and Technologies in Health (CADTH), the AMSTAR scale (Assessment of Multiple Systematic Reviews) is considered to be most useful tool for systematic review of the scale, along with certain criteria published by the Critical Appraisal Skills Program (CASP UK) that are frequently and widely accepted standards used for evaluating qualitative and quantitative studies.⁵¹

Objectives of the Review

The aim of the present review is to evaluate, analyze and synthesize the research literature in order to examine the causal connection between certain types of Facebook use (passive) and social comparison, envy, and depression within the framework of social rank theory. The aim is to identify a mediating

⁵⁰ Perestelo-Perez L. (2013). Standards on how to develop and report systematic reviews in Psychology and Health. *International Journal of Clinical and Health Psychology*, p. 6
Retrieved from

<https://www.sciencedirect.com/science/article/pii/S1697260013700073>

⁵¹ Noble H., Smith J. (2018). Reviewing the literature: choosing a review design.
Retrieved from

<https://ebn.bmj.com/content/early/2018/03/13/eb-2018-102895>

connection and separate the type of use that is influential in the manifestations of these negative emotions (social comparison, envy, depression).

RESULTS

Social Comparison, Social Media, and Self-Esteem, Vogel E., Rose P. J., Roberts L., 2014

This study used a correlational approach to examine the chronic and temporary exposure of female college students to social comparison information on Facebook. After a review of the literature, the researchers came to the conclusion that Facebook has been shown to cause decreased wellbeing and increased symptoms of depression, while the mediator of social comparison had never been examined by prior research.⁵²

The focus in the first study was exactly that: namely, to examine the mediator of upward social comparison. This was done through a series of questionnaires evaluating how often the participants used FB and to what extent they focused on upward or downward comparison during use. The final questionnaire used the Rosenberg Self-Esteem Scale to assess the participants' self-worth. This is a scale that has reportedly very high reliability ratings according to the Statistic Solutions website.⁵³ The two questionnaires connected the frequency of Facebook use and amount of Facebook use, criteria that were explained in more detail in the "procedure and measures" section, although neither was evaluated with the analysis for high validity. Neither had been used

⁵² Vogel E., Rose P. J., Roberts L. (2014). Social comparison, social media, and self-esteem. *American Psychological Association*, p. 3.
retrieved from
https://www.researchgate.net/publication/275507421_Social_comparison_social_media_and_self-esteem

⁵³ <http://www.statisticssolutions.com/rosenberg-self-esteem-scale-ses/>

in any other study, which could be a liability for the reliability of the results derived from these two questionnaires.

The sample of participants in the study was a one hundred and forty-five graduates from a Midwestern University with approximately two-thirds of the sample being female. This variable was not tested for because of the lop-sided gender distribution of the sample size. The sample size is appropriate for this type of study. Participants with heavier Facebook use tended to evaluate themselves more poorly and also tended to report more of both types of comparisons. In general, upward comparison was more common. Frequency of Facebook use accounted for 14% of self-esteem variance. Using the same model without the addition of the mediator of social comparison frequency of Facebook use accounted for only 4% of the self-esteem variance.⁵⁴

Since there are many other causal factors that could be relevant (for example, people with lower self-esteem differing in their social media use thus accounting for the mediation module), the researchers devised an additional study of the significance of temporary exposure in the same configuration. They did this by exposing the participants to fictitious profiles with a significant upward or downward directional status. The results showed that when the participants were exposed to upward comparison **instigating** profiles their self-esteem was lower.

Okomentoval(a): [ED6]: This word does not make sense.

The participant sample size in the second part of the study was somewhat smaller, being a subset of the first sample. In this part of the study, the sample size was one hundred and twenty-eight graduates with more than two-thirds of the sample size being female. Possible limitations of the study were the lack of other variables connected with Facebook use (intensity or number of friends),

⁵⁴ Vogel E., Rose P. J., Roberts L. (2014). Social comparison, social media, and self-esteem. *American Psychological Association*, p. 7. retrieved from https://www.researchgate.net/publication/275507421_Social_comparison_social_media_and_self-esteem

and the possible increase of the amount of manipulated profiles to which the participants were exposed. In addition, in the first part of the study the differentiation between upward comparison and downward comparison was assessed through a single item for each type of comparison thus leaving room for measurement error. According to the study, the reason a single item criteria was used is because this tactic had been confirmed as viable in many other studies based on the extreme distinction of the two poles of upward and downward distinction.⁵⁵ The researchers acknowledged these limitations, but remained certain that the mediator of upward social comparison causing lower levels of self-esteem were consistent throughout the results, and that the multidisciplinary approach (correlational and experimental studies) confirmed this.

Okomentoval(a): [ED7]: Explain: do you mean: upward and downward comparison?

Social comparison on Facebook: Its Antecedents and Psychological Outcomes, Song H., 2018

In this study, researchers attempted to develop on the possible limitations of the previous study by exploring the role of impression management and the search for social support as being possible antecedents to negative psychological outcomes of Social Comparison on Facebook (SCOF).

Okomentoval(a): [ED8]: Is this correct?

This research was done in a large private university in Seoul, South Korea. It consisted of an online survey with three hundred and thirteen participants included, all of the participants receiving extra credit from their university. This would appear to be an appropriately large sample size for such a complex research study into the antecedents of Facebook's psychological profiles.

⁵⁵ Vogel E., Rose P. J., Roberts L. (2014). Social comparison, social media, and self-esteem. *American Psychological Association*, p. 15. retrieved from https://www.researchgate.net/publication/275507421_Social_comparison_social_media_and_self-esteem

The following is a list of a multitude of mini-hypotheses of the study along with the results of the analysis (in brackets): Facebook use is positively associated with Social Comparison on Facebook (supported); SCOF is negatively associated with perceived social support (not supported); SCOF is negatively associated with mental health (supported in a negative direction); Facebook use is positively associated with perceived social support (supported); self-esteem is positively associated with perceived social support (supported); self-esteem is positively associated with mental health (supported); impression management is positively associated with SCOF (supported); impression management is positively associated with perceived social support (supported); impression management is positively associated with mental health (not supported); and finally perceived social support is positively associated with mental health (supported).⁵⁶

Data was collected through an online survey using multiple questionnaires that were then linked together through the analysis of the responses. The questionnaires that tested the various hypotheses were derived from a number of different scales that evaluated of six different measures: Facebook use, social comparison orientation on Facebook, perceived social support, mental health, self-esteem, and Impression management. All criteria but the Facebook use measure were evaluated through previously used, valid and reliable scales including the Rosenberg's' Self-Esteem scale already encountered in the previous study.

Following this first step, a correlational analysis with all the variables was calculated. The main section calculated the results using the structural equation model (SEM) that was used to test the hypotheses, and then the results were

⁵⁶ Song H. (2016). Social comparison on Facebook: Its antecedents and psychological outcomes. *Computers in Human Behavior*, pp. 3-5.
Retrieved from https://www.researchgate.net/publication/300005242_Social_comparison_on_Facebook_Its_antecedents_and_psychological_outcomes?enrichId=rgreq-0c0f97042cbb6762c10bbc9dfe8e7976-XXX&enrichSource=Y292ZXJQYWdlOzMwMDAwNTI0MjtBUzo1OTU2MDUxOTM3NmMwNTZAMTUxOTAxNDc1MjMyNA%3D%3D&el=1_x_3&_esc=publicationCoverPdf

applied to the necessary standards of results. The results were examined using the assumption that more Facebook use caused more social comparison, with a greater orientation toward social comparison being associated with a deterioration mental health. Those with high self-esteem are less likely to be affected by social comparison, while those with lower levels of self-esteem are more likely to be affected by social comparison. Individuals who are more concerned about impression management are much more likely to engage in social comparison. In addition, Facebook use was found to be positively associated with social support thus showing that there is no direct connection between Facebook and lowered self-esteem, but rather the specific behavior of social comparison on Facebook is negatively channeled into mental health.⁵⁷

Nevertheless the causal relation proposed by the study did little to eliminate the limitations of the previous study, for the same reason that there may be other factors that influence self-esteem and mental health, not to mention the possibility that the factors of cause and effect may well be reversed. The researchers did not measure and control for variables of gender, age, or socio-economic background that could also have an impact on results. This proved to be an unavoidable problem in all the studies under consideration. The generality and intuitive nature of the hypotheses' put forward should also be noted. All the same, the results should be considered valid because of the sample size and the multiple measures of correlation.

⁵⁷ Song H. (2016). Social comparison on Facebook: Its antecedents and psychological outcomes. *Computers in Human Behavior*, pp. 7-8.
Retrieved from https://www.researchgate.net/publication/300005242_Social_comparison_on_Facebook_Its_antecedents_and_psychological_outcomes?enrichId=rgreq-0c0f97042cbb6762c10bbc9dfe8e7976-XXX&enrichSource=Y292ZXJQYWdlOzMwMDAwNTI0MjtBUzo1OTU2MDUxOTM3NmMwNTZAMTUxOTAxNDc1MjMyNA%3D%3D&el=1_x_3&_esc=publicationCoverPdf

Social Comparison, Envy, and Depression on Facebook: A Study Looking at the Effects of High Comparison Standards on Depressed Individuals, Appel H., Crusius J., 2015

This study is intriguing because it reversed the point of interest, attempting trying to show that depressed individuals are more affected by social comparison and envy, rather than that social comparison and envy cause depression. The researchers took a group of depressed individuals and psychologically stable (or more accurately non-depressed) individuals who were rated according to their score on a BDI-V psychometric evaluation scale called, originally known as the Beck Depression Inventory. (There was no information available online regarding the “V” variation of the BDI.) In general, the BDI is considered to be a reliable psychometric scale and is frequently used in a studies dealing with depression. However, the variant used in this specific study has not been evaluated in any other study and therefore is an un-confirmed psychometric scale, which devalues all the results retrieved from this study. The study consisted of a sample of eighty-nine people, made up of forty-four depressed and forty-five non-depressed individuals. There was no demographic variance between the depressed group and the control group other than socio-economic status and education. Despite these limitations, the following is a brief synopsis of the research results.

Stimulus profiles were developed that were specifically designed to be attractive, healthy, successful, or none of the above. The participants were then instructed to view these profiles for an unspecified amount of time (this being another limitation of the study). Afterwards, the participants completed additional anonymous psychometric Self-Evaluative-Scales regarding the feelings they experienced that were triggered by viewing the profiles: for example, perceptions of how much happier and better off the owner of the profile was compared with the participant also separately measuring for attraction, social comparison in the form of happiness of the stimulus users profile they were viewing, envy,

depression, and self-esteem with psychometric scales that had all been previously used and confirmed to be valuable.

The depressed group displayed higher levels of feeling inferiority, which was a predictor of substantial envy in any case but especially when comparison standards were high, therefore especially with intensive upward comparison. Participants in the depressed group were found to have a lower threshold for envy, distorted social comparison, and low self-esteem.⁵⁸ Although the results seem logical, they nevertheless should be somewhat disregarded in further evaluations due to the generally incomplete nature of the analysis, which included no additional variables or description of the participant elimination process, and the use of a psychometric scale that had been never before (or only minimally) tested,

Using Social Media for Social Comparison and Feedback-Seeking: Gender and Popularity Moderate Associations with Depressive Symptoms, Nesi J., Prinstein J. M., 2015

This study was a longitudinal study in which researchers attempted to examine the interaction of online behavior such as social comparison and interpersonal feedback seeking. The fact that this was a longitudinal study enhances its strength and value, because such studies had rarely been done in the past. The study was conducted by having adolescents report the frequency of their Facebook use as well as depressive symptoms they might be experiencing through self-reported online questionnaires combined with popularity evaluations. The popularity evaluations were conducted using sociometric procedures of

⁵⁸ Appel H., Crusius J. (2015). Social Comparison, Envy, and Depression on Facebook: A Study Looking at the Effects of High Comparison Standards on Depressed Individuals. *Journal of Social and Clinical Psychology*, p. 10.

Retrieved from
https://www.researchgate.net/publication/274067560_Social_Comparison_Envy_and_Depression_on_Facebook_A_Study_Looking_at_the_Effects_of_High_Comparison_Standards_on_Depressed_Individuals

measuring peer-reported popularity.⁵⁹ Other questionnaires explored depressive symptoms, general technology-based social comparison and feedback seeking, as well as general communication with romantic partners and social support seeking, and finally the frequency of technology use. The frequency of technology use was evaluated using a psychometric scale called “The Motivations for Electronic Interaction Scale”, which had been developed by one of the authors and was used in practice for the first time during this study which devalues the results to a certain degree.⁶⁰ Social support seeking was measured by expanding and adjusting a relatively well-acclaimed Reassurance-Seeking-Scale. The scale was adapted by the researchers because it had been previously been criticized as being too narrow in scope due to having only four questions.⁶¹ Depressive symptoms were assessed using “The Short Mood and Feeling Questionnaire”, a psychometric survey that is a widely used evaluative scale. According to a study controlling the Short Mood and Feelings Questionnaire against the International Statistical Classification of Diseases and Related Health Problems (the 10th revision) individuals with social anxiety, less well-educated individuals, and females tend to over-report depressive symptoms which matched the results of the current study.⁶² Females were shown to have higher

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⁵⁹ Nesi J., Prinstein J. Mitchell. (2015) Using Social Media for Social Comparison and Feedback-Seeking: Gender and Popularity Moderate Associations with Depressive Symptoms. *Journal of Abnormal Child Psychology*, p. 4.

Retrieved from
https://www.researchgate.net/publication/275362604_Using_Social_Media_for_Social_Comparison_and_Feedback-Seeking_Gender_and_Popularity_Moderate_Associations_with_Depressive_Symptoms

⁶⁰Nesi J. (2014). The Relationship Between Adolescent Technology Use And Depressive Symptoms: An Integrative Model Of Offline and Technology Based Risk Factors. Retrieved from

<https://cdr.lib.unc.edu/indexablecontent/uuid:3ce96d0c-3301-48b9-bbf0-3cfa3ea6e243>

⁶¹ Nesi J., Prinstein J. Mitchell. (2015) Using Social Media for Social Comparison and Feedback-Seeking: Gender and Popularity Moderate Associations with Depressive Symptoms. *Journal of Abnormal Child Psychology*, p. 5.

Retrieved from
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⁶² Turner N., Joinson C., Peters T.J., Wiles N., Lewis G. (2014). Validity of the Short Mood and Feelings Questionnaire in late adolescent.

Retrieved from
<https://www.ncbi.nlm.nih.gov/pubmed/24749755>

average levels of most of the study variables including depressive symptoms, technology based social comparison, frequency of technology use, and excessive reassurance seeking.⁶³

In the initial phase, baseline depressive symptoms (baseline being the median standard of the results retrieved from the depression psychometric surveys), excessive reassurance seeking, and overall frequency of technology usage were entered as covariates. In the second phase variables of gender, popularity, and technology-based social comparison were added to the formula.⁶⁴ This enhances the value of results because it controls/removes their influence on the variables of interest. The hypothesis was tested within a hierarchical multiple linear regression framework using maximum likelihood estimation. In this study, depressive symptoms preceded and predicted technology-based social comparison and feedback seeking. In general, the study was designed to identify certain elements that may cause individuals to be prone to react negatively to frequent technology usage. Results indicated that these were females who are unpopular and tend to prune their impression management. Popularity was positively associated with the frequency of technology use and technology-based social comparison, and negatively associated with depressive symptoms.

There are numerous limitations in this study, some based on the low level of mean depression (which is common in school-settings) and the preliminary basis of findings, which the researchers maintained should be developed with more longitudinal studies in order to more vigorously assess the temporal relationships between the studied variables. Self-evaluation research methods were defined by the researchers as an additional limitation on the study's results

⁶³ Ibid.

⁶⁴ Nesi J., Prinstein J. Mitchell. (2015) Using Social Media for Social Comparison and Feedback-Seeking: Gender and Popularity Moderate Associations with Depressive Symptoms. *Journal of Abnormal Child Psychology*, p. 7.

Retrieved from
https://www.researchgate.net/publication/275362604_Using_Social_Media_for_Social_Comparison_and_Feedback-Seeking_Gender_and_Popularity_Moderate_Associations_with_Depressive_Symptoms

because of problems with recall and other biases. However, based on the fact that almost all the studies reviewed in this systematic analysis were based on self-evaluative psychometric scales, I believe that including this as a limitation is both premature and illogical. The only alternative is the combination of self-reporting and natural methods such as the observational coding of adolescents outputs to assess the validity of technology-based social comparison and feedback seeking along with other variables. Other limitations are the inability, due to the small sample, to predict differences based on ethnicity that was defined as one of the preliminary goals of the study. For this systematic review, the limitations would be that the study veered away from the subject matter that we are focusing on by emphasizing ethnicity and gender variables in the difference of outcomes, factors that are intentionally avoided in this general systematic review. The other possible limitation would be the age of the participant group as this is the only study that deviates from the general college-age levels of participants surveyed. Results could be affected by the different levels of maturity and exposure.

Passive Facebook Usage Undermines Affective Well-Being: Experimental and Longitudinal Evidence, Verduyn P., 2015

This study is one of two that focuses predominantly on the effect of passive Facebook use on wellbeing. The emphasis of the study filling previously encountered gaps in the literature, which resulted in a failure to identify what role envy plays in explaining the manifestation of negative wellbeing as a result of passive Facebook use.⁶⁵ One positive element in this study was that it explored both immediate effects and delayed effects using a one-week timeframe.

⁶⁵Verduyn P. (2015). Passive Facebook Usage Undermines Affective Well-Being: Experimental and Longitudinal Evidence. *Journal of Experimental Psychology*, p. 3
Retrieved from
<https://www.semanticscholar.org/paper/Passive-Facebook-usage-undermines-affective-and-Verduyn-Lee/58c2d59cea05a84ad28bbd39a6888fdf98cb2dea>

This study used one of the smallest participant samples of all seven research studies being reviewed here. The sample was perhaps too small for the ambitious quasi-longitudinal achievements that the study aimed for. The study sample consisted of eighty participants who were all undergraduate students of the University of Michigan, with the researchers aiming for at least thirty-five participants per sample. Despite the fact that this is a longitudinal experiment and that the sample size technically meets the minimal standards for this type of survey, I believe that the difficulty of the question and theme involved would require larger rather than minimal sample sizes.

The study's approach was experimental. Initially, students were asked to evaluate their life-satisfaction, loneliness, and motivations for using Facebook. Subsequently participants were randomly assigned to use Facebook actively or passively for the duration of ten minutes. The weakness of the study at this point was the lack of specification regarding the origin of the self-evaluative surveys. This drastically minimizes their validity. The participants were then asked to fill out an additional questionnaire that included questions about how connected they felt and how much better or worse they would evaluate their life compared to others. Neither of these psychometric surveys were specified, which also minimizes the validity of the results. A follow-up survey took place to evaluate how the participants' feelings had changed but comparing results from the same questionnaires taken at the start of the experiment. An additional question was included addressing their evaluation of their general Facebook use outside of the survey and whether it could be considered active or passive.

The results showed that passive Facebook usage predicted a general decrease in wellbeing levels of participants over time, especially compared to their baseline and post-survey feelings. Active users showed no such change. The expectations of the researchers were that the passive Facebook users would view their own life as worse compared to others, but repeated measures of this variable recorded no immediate changes, and both changes in life satisfaction

and changes in comparing their own lives others, changed only at the end of the day which was shown in the second part of the study.

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In the second part of the study, participants received text-messages over a seven day period linking them to online questionnaire assessing well-being, envy, active Facebook usage, direct social interactions, and non-Facebook online social network usage.⁶⁶ There was also a life-satisfaction survey performed before and after the week of the experiment.

The analysis was therefore able to connect the amount of active or passive Facebook use with the lagging general feelings of life-satisfaction. The analysis showed that participants who reported a lot of passive Facebook use tended to have significantly lower life-satisfaction and wellbeing reports. Interestingly, the results were not mediated by any other possible variables such as gender, number of Facebook friends, depressive symptoms, loneliness, self-esteem, or the reason for using Facebook. The only variable that seemed to mediate the connection of passive Facebook usage with changes in affective wellbeing was envy. Once envy was controlled for as the mediated between the changes between life-satisfaction, wellbeing and passive Facebook use, the relationship became insignificant. Both of the studies showed a lag or time interval of twelve hours between passive Facebook usage and its negative effects, which was explained by a certain timeframe needed to process the consumed information.

What is also noteworthy in this study is that participants tended to use Facebook passively rather than actively 50% of the time, showing that passive Facebook usage is perhaps a more natural way of using Facebook in general.⁶⁷

⁶⁶ Verduyn P. (2015). Passive Facebook Usage Undermines Affective Well-Being: Experimental and Longitudinal Evidence. *Journal of Experimental Psychology*, p. 5
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<https://www.semanticscholar.org/paper/Passive-Facebook-usage-undermines-affective-and-Verduyn-Lee/58c2d59cea05a84ad28bbd39a6888fdf98cb2dea>

⁶⁷ Verduyn P. (2015). Passive Facebook Usage Undermines Affective Well-Being: Experimental and Longitudinal Evidence. *Journal of Experimental Psychology*, p. 7
Retrieved from

The results also show that it is nearly impossible to navigate Facebook passively without it negatively influencing how we feel, since passive Facebook use tended to cause decreases in feelings of life-satisfaction and wellbeing as a result of the envy mediator. The only cases in which passive Facebook use could be undertaken in a non-detrimental fashion is when envy was not manifested.

Once again, the lack of a control group and large amount of possible additional variables in the daily life of the participants were not accounted for, though many of these would be impossible to control for. The control group that would be the most useful in all of these studies (and which for the most part were avoided) were study participants who did not use Facebook at all; namely, participants who would be instructed to use the computer for ten minutes randomly researching or not doing anything in particular of value, just casually spending time on the internet doing what they would normally do, with Facebook not being part of their repertoire.

Facebook Use, Envy, and Depression among College Students: Is Facebooking Depressing? Tandoc E., Ferrucci P., Duffy M., 2014

In this study, three questions were asked which mostly attempted to elaborate on previously established connections between depression and Facebook surveillance use with the mediator being envy. This is the second study that had an emphasis on passive Facebook usage.

The following hypotheses were explored followed by the label “supported” or “not supported” based on the findings of the study: heavy Facebook users tend to feel higher levels of Facebook envy than light Facebook users (supported); Facebook users with a large network of friends tend to feel higher levels of Facebook envy than users with a small network of friends (not supported); Facebook users who report feeling higher levels of Facebook envy

<https://www.semanticscholar.org/paper/Passive-Facebook-usage-undermines-affective-and-Verduyn-Lee/58c2d59cea05a84ad28bbd39a6888fdf98cb2dea>

tend to report more symptoms of depression than those who feel lower levels of Facebook envy (supported); what specific uses of Facebook predict Facebook envy (on a scale of active use toward surveillance only the surveillance type of use predicted envy), and; finally does Facebook envy mediate the relationship between Facebook use and depression among college students (supported).⁶⁸

The analysis was conducted using surveys regarding participants Facebook use that attempted to discover how often they actively participated in the creation of Facebook content, and whether the participants could be grouped into the surveillance group. The other two questionnaires were concerned with envy and depression. One questionnaire made use of an especially constructed scale (related to envy), the other done an existing and frequently used scale called the Epidemiologic Studies Depression Scale (related to depression). A range of analyses types were employed with the two questions, the most common being a two-way analysis of variance and correlation, or partial correlation analysis, and a singular bootstrapping analysis in the case of the connection between Facebook use and depression with the possible mediator of envy. The most provocative finding to come out of this study was the apparent discovery that when Facebook is used for surveillance without the feeling of envy as a mediator, it may even lessen depression. However, this represents an extremely weak finding compared with previous research results that suggested that surveillance virtually always tends to increase symptoms of depression based on the vulnerability and self-criticism manifestation of social comparison.⁶⁹

Indeed this last finding leads me to believe that the whole procedure and analysis of the results may be weaker than previously assumed since some of the results

⁶⁸ Tandoc Edson C., Ferucci P., Duffy M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior*, p. 3. retrieved from

<https://pdfs.semanticscholar.org/846b/59235a7b6f55728e2f308bb1f97a4a6dceba.pdf>

⁶⁹ Tandoc Edson C., Ferucci P., Duffy M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior*, p. 6. Retrieved from

<https://pdfs.semanticscholar.org/846b/59235a7b6f55728e2f308bb1f97a4a6dceba.pdf>

are absolutely contradictory or only plausible in theory. If the conclusion of the study is that using Facebook for surveillance instigates envy, then it is difficult to claim that when envy is not instigated by surveillance use (despite being directly tied to it) depression may lessen.

Envy on Facebook: A Hidden Threat to Users' Life Satisfaction? Krasnova H., Wenninger H., Widjaja T., Buxman P., 2014

This research is based on the acknowledgement that envy can lead to frustration, mental suffering, and even depression, specifically when it is triggered by passive Facebook use. Already in the literature review of the study, it is mentioned that Facebook friends typically consist of individuals with similar backgrounds and interests as the user, which also has been shown to be more conducive to the manifestation of envy.

The participants in the study were all from the mailing list of Humboldt-Universität zu Berlin. Three hundred and fifty-seven qualified for the ultimate sample. Initially the participants were given an open-ended question about which emotions they experienced after using Facebook. This method avoids priming, namely that a specific question triggers a certain response, making this one of the few studies that actively attempted to eliminate priming, which is a very positive element of the study. The responses were coded and revealed that approximately half the respondents reported at least one positive emotion; a smaller percentage of participants reported at least one negative emotion.

Envy was mentioned by only 1.2% of the sample. The following emotional associations were reported more frequently: boredom, anger, frustration, guilt, fatigue, sadness, and loneliness in that order (with loneliness being the second least mentioned association). The following was the second question on the

questionnaire: “Many users report feeling frustrated and exhausted after using Facebook. What do you think causes these feelings?”⁷⁰

This projective technique was apparently used to help elicit honest responses, a dubious claim. In fact, projective questions are generally avoided in research because they project a certain mindset and influence the tone of the answers. Nevertheless, the respondents mentioned envy as the category with the highest importance, surpassing lack of attention, loneliness, and time loss. In their responses to a follow-up question, a third of the participants reporting feeling envy often or at least sometimes. The researchers believed that the reason that envy did not emerge as important in the first part of the survey was because they were ashamed or un-willing to admit to it.

The second part of the study focused on the role of Facebook envy in users’ life satisfaction. The study relied on the assumption that envy was most often felt during passive Facebook use. The following is a list of hypotheses researchers proposed following by “supported” or “not supported” to show the results of the research: intensity of passive following on Facebook is negatively associated with Life Satisfaction (not supported); intensity of passive following on Facebook is positively associated with Envy on Facebook (supported); envy on Facebook is negatively associated with Life Satisfaction (supported), and; envy mediates a relationship between Intensity of Passive Following on Facebook and Life Satisfaction (supported). The control variables were gender, number of friends, age and active participation. The research was conducted using a series of psychometric self-evaluative surveys that dealt with envy, life satisfaction, and passive following and active Facebook presentation, which were then applied to many different models. These self-evaluative surveys were not specified as having been used previously or evaluated for their reliability or validity, which is

⁷⁰ Krasnova H., Wenninger H., Widjaja T., Buxmann P. (2014). Envy on Facebook: A Hidden Threat to Users Life Satisfaction? *Institute of Information Systems*, p. 5. Retrieved from <https://www.semanticscholar.org/paper/Envy-on-Facebook%3A-A-Hidden-Threat-to-Users'-Life-Krasnova-Wenninger/b775840d43f9f93b7a9031449f809c388f342291>

one of the main reasons the results of this research may be viewed less seriously. However, it should be mentioned that this paper has been frequently cited in subsequent research papers, so it is apparent that it is of significant value to other researchers in this field.

In sum, the researchers concluded that envy fully mediates the relationship between passive following and information consumption on Facebook, and a lowering of Life Satisfaction.⁷¹ Users mainly envied the happiness of others indicated in the ways other people spent their vacations and socializes. The limitations of these studies were not actually summarized by the researchers, itself a major limitation of the study which significantly lowers the quality of the research paper. In addition, all of the self-reported psychometric surveys were designed specifically for the study and it was not specified whether they had been previously tested. This must also be considered a limitation of the study.

Discussion

The common objective of the studies in the analysis was to find a connection between Facebook use, which was commonly outlined to be more potent in its passive or surveillance form, and emotional responses of envy and depression. The latter were found to be heavily correlated with social comparison that fits into the framework of social comparison.

The results of all the studies clearly coincided, indicating that, regardless of possible limitations (which were similar in all of the studies and depended on the difficulty of the models applied), there is some validity to the results. The principle limitation of the studies was the lack of control groups that would consist of participants who did not use Facebook. Participants in this hypothetical control

⁷¹ Krasnova H., Wenninger H., Widjaja T., Buxmann P. (2014). Envy on Facebook: A Hidden Threat to Users Life Satisfaction? *Institute of Information Systems*, p. 11. Retrieved from <https://www.semanticscholar.org/paper/Envy-on-Facebook%3A-A-Hidden-Threat-to-Users'-Life-Krasnova-Wenninger/b775840d43f9f93b7a9031449f809c388f342291>

group could similarly be surveyed for levels of envy, depression, and social comparison in off-line situation, as well as general well-being and life satisfaction regardless of their online activities. This would be possible to do in the majority of the studies surveyed, and would indicate to what extent Facebook use causes these emotional responses, and to what extent the general competitive environment in modern capitalist society is to blame.

The last study evaluated (by *Krasnova H. et al.*) indicated that without priming, the majority of participants reported in response to open-ended questions at least one positive emotional effect of Facebook. The other studies asked questions that related to negative effects only; thus any positive implications of Facebook could be missed. This was not the object of any of the studies or of the systematic review and therefore can be disregarded.

In addition, all the psychometric surveys had an obviously specified direction that could have caused the answers to be slightly biased, or adjusted to fit the questions. The questionable reliability of self-evaluative surveys could easily be taken as a limitation, which is often the cases when other research models are available. In the case of psychological effects of Facebook use, it is difficult to think of methods by which more reliable information about the emotions of individual users could be ascertained.

Nevertheless, the advantage and possible benefit of this study review is that a sample of research studies were reviewed that generally dealt with the same topic and often the same variables, but that focused on slightly different aspects of the same issue. Regardless of the country of origin, the size of sample, or the age of participants, there was almost no variation in the essence of the conclusions.

The study conducted by *Nesi J. et al.* in 2015 was the only study that found the gender variable to be an important factor in social comparison, feedback seeking, and lower levels of self-esteem and life satisfaction. This was

also the study with the youngest participants, and it used a psychometric scale that has been proven to be especially sensitive to the responses of female participants. All the other research papers suggested that the gender variable was irrelevant.

What was clearly shown in the studies by *Vogel E. A. et al.*, *Song H.*, *Appel H. et al.*, and *Nesi J. et al.* is that the Facebook environment, the infrastructure of the web site, and the way it is normally used encourages social comparison. This was demonstrated primarily by linking heavier Facebook use with higher levels of social comparison. The fact that passive Facebook usage stimulates social comparison more than active Facebook usage had been explicitly proven in three of the studies and was essentially taken for granted in the rest based on the literature reviews. Three studies that found passive usage to be the initial trigger for decreased well-being and life satisfaction were those conducted by *Verduyn P.*, *Tandoc E. et al.* and *Krasnova et al.*, and were conducted by comparing the effects of passive Facebook use and active Facebook use. The findings suggest that passive Facebook use is necessarily specified as the type of activity that causes negative psychological effects in users.

It was demonstrated that passive Facebook usage (and in cases where Facebook usage was equated with passive Facebook usage through the previously accepted literature) causes lower levels of life satisfaction and wellbeing, which was shown to be mediated by envy in four of the reviewed papers (*Appel H. et al.*, *Verduyn P.*, *Tandoc E. et al.* and *Krasnova H. et al.*), and if not specifically envy then social comparison (*Vogel E. A. et al.*, *Song H.*).

The principle limitation of all the studies is the ambiguity of cause and effect that is the effect of depressed individuals, individuals with lower self-esteem, and lower levels of life satisfaction being prone to passive Facebook use, which in turn would cause envy. In other words; do people with personality types inclined toward comparison, low self-esteem, envy, and loneliness spend

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more time on Facebook in passive activities because of these personality traits, or are these personality traits caused by passive participation on Facebook? All the reviews touched on the question of correlation, but did not provide enough experimental evidence to answer this question, which indicates a necessary and interesting direction for additional research. This review thus provides an excellent proposition to how the information and studies linking passive Facebook use to social comparison, envy, and impression management could be expanded and tailored by finding a way to eliminate the potential for reversing cause and effect. This could be done with additional longitudinal and experimental studies that explored various personality types and their predisposition to certain types of Facebook use (passive, prone toward social comparison) and the emotions (envy, depression) triggered by it.

By reviewing all the individual studies, we believe that hypothesis that Facebook use, and more specifically passive Facebook use, results in an increased amount of (mostly) upward social comparison which in turn, when moderated by the emotion of envy, causes negative psychological effect like negative wellbeing, lower self-esteem, decreased life satisfaction and depressive symptoms, was found in all studies and thus is supported.

Conclusion

Since the most recent communication revolution and our societal shift toward functioning within the Network society it is apparent that the social rank theory strengthens in importance and groundedness within our social interactions. The meaning of the individual and the increasing competitiveness within our global culture is exacerbated by the clearly outlined “ranks” represented in Facebook and other social network web sites. All the studies included in this overview were selected in order to highlight the main problems of certain kinds of Facebook usage. As mentioned, I have only included seven studies but have reviewed many more during my research. During my research, I went over the majority of English-written research available online that concerned

Facebook use and psychological wellbeing, as well as a vast amount of other research with other issues that were not the focus of my paper, such as addiction, effects on community participation, and cyberbullying. Those that I included I felt dealt with the most essential, core issues that cause Facebook to be so detrimental.

I believe it is important to realize the wider societal mechanism developed over time that influence the importance of Facebook in our community. Even the first computers developed at the beginning of the 20th century and the re-parcellation of our society into what has been named the Network society, the parallel development of globalization, have all been influential in the process of the development of Facebook and other social networks. Social rank theory has been instrumental since the formation of smaller human groups but in the case of Facebook and the socio-economic systems that prevail nowadays its meaning for the functioning of individuals has caused living without social comparison, envy and the side effects they trigger, much harder.

Through the process of the systematic review the fact that passive Facebook use caused social comparison, envy and at times depression, has been demonstrated. As the solution for the manifestation of these types of feelings what is proposed is the following: not quitting Facebook altogether, but minimizing usage of it, and the mandatory cessation of passive activities.

Because of negative press and concerns emerging from these studies, Mark Zuckerberg, CEO of Facebook, has publicly declared that the company will make efforts to reduce the time people spend on Facebook, and to promote meaningful social interaction rather than relevant content (non-advertisement content from publishers and brands). These changes would be implemented by altering the algorithms that control users news-feed.⁷² According to his

⁷² Marck Zuckerberg Promises to Make your Facebook Feed 'More Meaningful'. (2018, January 12th).

Retrieved from <http://fortune.com/2018/01/11/mark-zuckerberg-facebook-meaningful/>

statements the priority is to make time on Facebook time well spent through a shift away from media centered news feed to a more socially focused news feed.⁷³ The changes Mark Zuckerberg would like to implement might lower the average time on Facebook by a few minutes a day, and make time spent on Facebook more “meaningful” by replacing advertising content with articles and friends activities, but these changes do not impact the passive Facebook use that is most damaging for users. These are not ideological changes, but changes made as in response to media criticism in order to placate the public.

It seems undemocratic – that is against the freedom of the individual – but it would be possible to structurally prevent passive activity by creating an automatic Facebook black-out. Namely, if algorithms pick up on inactivity and purely surveillance-oriented actions, the program could shut down. Predictably, self-regulation is not as effective because of Facebook’s addictive qualities. This could be an option that Facebook users chose amongst the other settings to avoid uproar. Other ways that Facebook use could be controlled would be a maximum cap of daily time allowed on Facebook or disabling certain activities, like viewing friends’ profile more than once every day, perhaps allowing it only once every three days. Taking different self-evaluative scales or questionnaires connected with daily well-being, feeling of loneliness, and isolation and self-satisfaction could be used to apply restriction on how individuals “set-up” their profiles with some activities being allowed and others not.

It might be hoped that the recent increase of public information about the negative effects of Facebook use may encourage users to inform themselves. A program could be put into place in schools and work-spaces that would educate youth and adults about potential harms in specific patterns of use and to a particular personality type. However, I do not believe that any of the methods

⁷³Facebook Stock Slumps After Mark Zuckerberg Signals Major Changes to News Feed. (2018 January 12th). Retrieved from <http://variety.com/2018/digital/news/facebook-stock-mark-zuckerberg-news-feed-1202662782/>

suggested above would be effective or even welcomed by users.

Yet the truth remains that the negative psychological impacts of Facebook are significant, and given the increasing number of users and the increasing prevalence of Facebook and other social media in the structure of socialization in contemporary society, they should be taken seriously. Research is clearly the first step in structuring plans that would control the possible negative effect. It is also extremely important within the context of technology and structural changes happening in society that the ways in which these negative aspects of fresh technologies spread and strengthen, are results of underlying and very deep ways in which our society and interactions are changing. Thus trying to predict and prevent technology stimulated changes within the context of Facebook for instance, is a very small sliver of the plethora of changes and possible negative effects that development and progression bring us. A way forward could be facilitating a world in which connection in the real rather than virtual world would be encouraged by reducing the constant necessity of online platforms. A world where online shopping and handling of bureaucracy would not be cheaper. Regardless of what is and will be infrastructurally offered to us, we as modern citizens of the new, progressive, steely world governed by algorithms must constantly keep in mind the importance, relevance and warmth of real conversations, real touch and real connection in the real world, without a screen bridging the divide.

Bibliography

- Appel H., Crusius J. (2015). Social Comparison, Envy, and Depression on Facebook: A Study Looking at the Effects of High Comparison Standards on Depressed Individuals. *Journal of Social and Clinical Psychology*, p. 10.
Retrieved from https://www.researchgate.net/publication/274067560_Social_Comparison_Envy_and_Depression_on_Facebook_A_Study_Looking_at_the_Effects_of_High_Comparison_Standards_on_Depressed_Individuals
- Beasley M., Sabatinelli D., Obasi E. (2012). Neuroimaging evidence for social rank theory. *Frontiers in Human Neurosciences*.
Retrieved from <https://www.frontiersin.org/articles/10.3389/fnhum.2012.00123/full>
- Boyd D., Crawford K. (2012, May 12th). *Critical Questions for Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon*.
Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.441.9822&rep=rep1&type=pdf>
- Bullington J., Lane E. (2013, March 13th). *Nola*. Facebook says police can no longer use its data for 'surveillance'.
Retrieved from http://www.nola.com/business/index.ssf/2017/03/facebook_police_data_surveillance.html
- Cadwalladr C., Graham-Harrison E. (March 17th). Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach. *The Guardian*.
Retrieved from <https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election>
- Castells, M. (2009). *The Rise of The Network Society*. New Jersey; Wiley-Blackwell Publishing.
- Chakraborty A. (2017, March 10th). Facebook Addiction: An Emerging Problem. *Psychiatry Online*.
Retrieved from <https://ajp.psychiatryonline.org/doi/full/10.1176/appi.ajp-rj.2016.111203>
- Deters F., Mehl M. R. (2012). Does Posting Facebook Status Updates Increase or Decrease Loneliness? An Online Social Networking Experiment. *Social Psychological and Personality Science*.
Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3820167/>

Gaille B. (2017, May 29th). Remarkable Facebook Addiction Statistics. *Brandon Gaille*.

Retrieved from

<https://brandongaille.com/42-remarkable-facebook-addiction-statistics/>

Jang K., Park N., Song H. (2016). Social Comparison on Facebook: Its antecedents and psychological outcomes. *Computers in Human Behavior*.

Retrieved from

https://www.researchgate.net/profile/Hayeon_Song/publication/300005242_Social_comparison_on_Facebook_its_antecedents_and_psychological_outcomes/links/5a8a5360aca272017e622127/Social-comparison-on-Facebook-Its-antecedents-and-psychological-outcomes.pdf

Johnson B. K., Knobloch-Westerwick S. (2014). Glancing Up or Down: Mood Management and Selective Social Comparisons on Social Networking Sites. *Computers in Human Behavior*.

Retrieved from

https://www.researchgate.net/publication/265550310_Glancing_Up_or_Down_Mood_Management_and_Selective_Social_Comparisons_on_Social_Networking_Sites?enrichId=rgreq-f634fe350920c932f29f1a89c5b366df-XXX&enrichSource=Y292ZXJQYWdlOzI2NTU1MDMxMDtBUzo1ODI3ODczMzQ5NzEzOTJAMTUxNTk1ODczNjM5Ng%3D%3D&el=1_x_3&esc=publicationCoverPdf

Kim J., LaRose R., Peng W. (2009). Loneliness as the Cause and the Effect of Problematic Internet Use: The Relationship between Internet Use and Psychological Well-Being. *CyberPsychology and Behavior*, vol.12, number 4.

Retrieved from

https://www.researchgate.net/profile/Robert_Larose/publication/26281071_Loneliness_as_the_Cause_and_the_Effect_of_Problematic_Internet_Use_The_Relationship_between_Internet_Use_and_Psychological_Well-Being/links/02bfe5122597698c3f000000.pdf

Kraut R., Patterson M., Lundmark V., Kiesler S., Mukophadhyay T., Scherlis W. (1998). Internet Paradox; A Social Technology That Reduces Social Involvement and Psychological Well-Being? *Carnegie Mellon University Journal*.

Retrieved from

<https://pdfs.semanticscholar.org/5db0/58de2e3637febb07b759a08d4e6cac0f1955.pdf>

Kuchler H. (2018, April 5th). Max Schrems: the man who took on Facebook – and won. *Financial Times*.

Retrieved from

<https://www.ft.com/content/86d1ce50-3799-11e8-8eee-e06bde01c544>

Krasnova H., Wenninger H., Widjaja T., Buxmann P. (2014). Envy on Facebook: A Hidden Threat to Users Life Satisfaction? *Institute of Information Systems*, p. 11.

Retrieved from

<https://www.semanticscholar.org/paper/Envy-on-Facebook%3A-A-Hidden-Threat-to-Users'-Life-Krasnova-Wenninger/b775840d43f9f93b7a9031449f809c388f342291>

Lewis P., Grierson J., Weaver M. (2018, March 24th). Cambridge Analytica academics work upsets university colleagues. *The Guardian*.

Retrieved from

<https://www.theguardian.com/education/2018/mar/24/cambridge-analytica-academics-work-upset-university-colleagues>

Lewis P. (2018, May 29th). Lawsuits Against Facebook Over Data Privacy Issues Are Piling Up. *The Street*. Retrieved from

<https://www.thestreet.com/story/14536213/1/everyone-who-is-suing-facebook-for-cambridge-analytica.html>

Lewis P. (2017, October 5th). 'Our minds can be hijacked': the tech insiders who fear a smartphone dystopia. *The Guardian*. Retrieved from

<https://www.theguardian.com/technology/2017/oct/05/smartphone-addiction-silicon-valley-dystopia>

Marino C., Gianluca G., Vieno A., Spada M. (2018). The associations between problematic Facebook use, psychological distress and well-being among adolescents and young adults: A systematic review and meta-analysis. *Journal of Affective Disorders*.

Retrieved from

<https://www.sciencedirect.com/science/article/pii/S0165032717307012>

Meline T. (2006). Selecting Studies for Systematic Review: Inclusion and Exclusion Criteria. *Contemporary Issues in Communication Sciences and Disorders*.

Retrieved from

<https://pdfs.semanticscholar.org/a6b4/d6d01bd19a67e794db4b70207a45d47d82f3.pdf>

Noble H., Smith J. (2018). Reviewing the literature: choosing a review design.

Retrieved from

<https://ebn.bmj.com/content/early/2018/03/13/eb-2018-102895>

Nesi J., Prinstein J. Mitchell. (2015) Using Social Media for Social Comparison and Feedback-Seeking: Gender and Popularity Moderate Associations with Depressive Symptoms. *Journal of Abnormal Child Psychology*, p. 7.
Retrieved from

https://www.researchgate.net/publication/275362604_Using_Social_Media_for_Social_Comparison_and_Feedback-Seeking_Gender_and_Popularity_Moderate_Associations_with_Depressive_Symptoms

Perestelo-Perez L. (2013). Standards on how to develop and report systematic reviews in Psychology and Health. *International Journal of Clinical and Health Psychology*, p. 6
Retrieved from

<https://www.sciencedirect.com/science/article/pii/S1697260013700073>

Rosen L.D., Whaling K., Rab S., Carrier L.M., Cheever N.A. (2013). Is Facebook creating "iDisorders"? The link between clinical symptoms of psychiatric disorders and technology use, attitudes and anxiety. *Computers and Human Behavior*.

Retrieved from

http://www5.csudh.edu/psych/Is_Facebook_Creating_iDisorders_The_Link_Between_Clinical_Symptoms_of_Psychiatric_Disorders_and_Technology_Use,_Attitudes_and_Anxiety-2013-Computers_in_Human_Behavior_Rosen_Whaling_Rab_Carrier_Cheever.pdf

Song H. (2016). Social comparison on Facebook: Its antecedes and psychological outcomes. *Computers in Human Behavior*, pp. 7-8.

Retrieved from

https://www.researchgate.net/publication/300005242_Social_comparison_on_Facebook_Its_antecedents_and_psychological_outcomes?enrichId=rgreq-0c0f97042cbb6762c10bbc9dfe8e7976-XXX&enrichSource=Y292ZXJQYWdlOzMwMDAwNTI0MjtBUzo1OTU2MDUxOTM3NzMwNTZAMTUxOTAxNDc1MjMyNA%3D%3D&el=1_x_3&_esc=publicationCoverPdf

Shah S. (2016, May 14th). The history of social networking. *Digital Trends*.

Retrieved from

<https://www.digitaltrends.com/features/the-history-of-social-networking/>

Shaw M. A., Timpano R. K., Tran B. T., Joorman J. (2015). Correlates of Facebook usage patterns: The relationship between passive Facebook use, social anxiety symptoms and brooding. *Computers in Human Behavior*.

Retrieved from

<https://www.sciencedirect.com/science/article/pii/S0747563215000825>

Song H., Zmyslinski-Seelig A., Kim J., Drent A., Victor A., Omori K., Allen M. (2014). Does Facebook make you lonely?: A meta analysis. *Computers in Human Behavior*.

Retrieved from

https://www.researchgate.net/profile/Hayeon_Song/publication/262016109_Does_Facebook_make_you_lonely_A_meta_analysis/links/5a8a52da458515b8af94d450/Does-Facebook-make-you-lonely-A-meta-analysis.pdf

Spangel T. (2018 January 12th) Facebook Stock Slumps After Mark Zuckerberg Signals Major Changes to News Feed. *Variety*.

Retrieved from

<http://variety.com/2018/digital/news/facebook-stock-mark-zuckerberg-news-feed-1202662782/>

Tandoc Edson C., Ferucci P., Duffy M. (2015). Facebook use, envy, and depression among college students: Is Facebooking depressing? *Computers in Human Behavior*, pp. 1.

Retrieved from

<https://pdfs.semanticscholar.org/846b/59235a7b6f55728e2f308bb1f97a4a6dceb a.pdf>

Tat, U. (2014, June 25th). *Social Media and Its Effects on Individuals and Social Systems*

retrieved from

<http://www.toknowpress.net/ISBN/978-961-6914-09-3/papers/ML14-714.pdf>

Toma L. Catalina. (2013). Feeling Better But Doing Worse: Effects of Facebook Self-Presentation on Implicit Self-Esteem and Cognitive Task Performance. *Media Psychology*. Retrieved from

https://www.researchgate.net/publication/262873576_Feeling_Better_But_Doing_Worse_Effects_of_Facebook_Self-Presentation_on_Implicit_Self-Esteem_and_Cognitive_Task_Performance

Turner N., Joinson C., Peters TJ., Wiles N., Lewis G. (2014). Validity of the Short Mood and Feelings Questionnaire in late adolescent.

Retrieved from

<https://www.ncbi.nlm.nih.gov/pubmed/24749755>

Turkle, S. (2011). *Alone Together*. New York: Basic Books

Van Dijck, J. (2013). *Culture of Connectivity: A Critical History of Social Media*. (pp. 62). Oxford:Oxford University Press.

Van Dijk, J. (2005). *The Network Society, Social Aspects of New Media*. London: SAGE publishing.

Verduyn P. (2015). Passive Facebook Usage Undermines Affective Well-Being: Experimental and Longitudinal Evidence. *Journal of Experimental Psychology*, p. 5

Retrieved from

<https://www.semanticscholar.org/paper/Passive-Facebook-usage-undermines-affective-and-Verduyn-Lee/58c2d59cea05a84ad28bbd39a6888fdf98cb2dea>

Vogel E., Rose P. J., Roberts L. (2014). Social comparison, social media, and self-esteem. *American Psychological Association*, p. 7.

retrieved from

https://www.researchgate.net/publication/275507421_Social_comparison_social_media_and_self-esteem

Wong J. C. (December 12th). Former Facebook executive: social media is ripping society apart. *The Guardian*. Retrieved from

<https://www.theguardian.com/technology/2017/dec/11/facebook-former-executive-ripping-society-apart>

Zalk M., Branje S., Meeus W., Boght T., Delsing M. (2009). Different types of Internet use, depression, and social anxiety: The role of perceived friendship quality. *Journal of Adolescence* 32.

Retrieved from

https://www.researchgate.net/profile/Maarten_Zalk/publication/46693332_Internet_and_adolescent%27_internalizing_problems_The_role_of_different_types_of_internet_use_and_quality_of_best_friendship/links/58469cc108ae2d21756dd884/Internet-and-adolescent-internalizing-problems-The-role-of-different-types-of-internet-use-and-quality-of-best-freindship.pdf

(2016, February 13th). The History of Social Networking: How It All Began! *Web Designer*.

Retrieved from

<https://1stwebdesigner.com/history-of-social-networking/>

(2018, April 25th). The Top 20 Valuable Facebook Statistics. *Zephoria*.

Retrieved from

<https://zephoria.com/top-15-valuable-facebook-statistics/>

(2015, Jan 13th). Your computer knows you. *The Guardian*.

Retrieved from

<https://www.theguardian.com/technology/2015/jan/13/your-computer-knows-you-researchers-cambridge-stanford-university>

(2018, January 12th). Marck Zuckenbug Promises to Make your Facebook Feed 'More Meaningful'. *Fortune*. Retrieved from <http://fortune.com/2018/01/11/mark-zuckerberg-facebook-meaningful/>