
Social Media Impact on Attention Span

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Abstract

The present study consisted of 209 respondents participating in a self-administered questionnaire developed by the researchers. The study purpose was to test three hypotheses. The first hypothesis was the number of social media accounts has no relevance to the length of attention spans. The second hypothesis was there is no difference in attention span length amongst frequent use of episodic social media and frequent use of non-episodic social media accounts. The third hypothesis was there is no difference in attention span length amongst users preferring mobile versions of social media versus computer versions. The study findings accepted three hypotheses. Future research is also addressed in the conclusion.

1. Introduction

The number of users and unique visits daily to social media sites are increasing exponentially (Keenan & Ali, 2009). Different social media sites encourage sociability in unique ways based on features or design practices of these sites that enable users to socialize with each other. Social media is a component of individuals' lives that continues to affect how humans socialize. The present study identified if participants with shorter attention spans have more social media accounts, prefer episodic social media applications and have a high frequency of use of their social media accounts from a mobile device or computer. Lukinova, Myagkov, and Shishkin (2014) discuss how evolutionary psychologists suggest that humans are social animals that crave a social environment. It is not surprising that online social networks emerged to feed humans desire to be part of a social environment. For individuals that cannot socialize in person such as those that live at a distance from their family and friends or that have a medical condition, social media networks can fulfill humans' need to be social.

The researchers developed the terms episodic and non-episodic social media as a method to classify different types of social media. A definition for episodic social media is social media that occurs at irregular intervals consisting of loosely connected information. Instagram, Snapchat, Twitter and Vine fall under this definition since each tweet, video or picture is often a stand-alone piece of information that does not have to be in relation to previous or future pieces of information. Episodic social media also has limitations on the number of characters and/or a limited time that a post appears. For instance, Twitter is limited to the number of characters allowed in a post and posts from strangers appear in a Twitter feed. Snapchat and Vine have pictures or videos that appear only for a brief time. Non-Episodic social media networks refers to Facebook, Google+, LinkedIn, Pinterest, Tumblr and YouTube. The researchers define non-episodic social media as social media with a blog-type interface scheduled for a fixed interval of time

such as a scheduled Hangout in Google+. Facebook, Tumblr, and Pinterest all have a blog-type feel that tells more stories than the short bursts of information of Snapchat, Vine, Twitter, and Instagram.

The study was comprised of 209 respondents that participated in a self-administered questionnaire developed by the researchers and conducted at a private university in the southeast. The literature review discusses social media and online sociability. The three hypotheses tested were on the relationships of social media technologies with respect to attention span. More details are in the research hypothesis, methodology and results sections. There is a discussion on the future research in the conclusion.

The hypotheses tested were on the relationships of social media technologies with respect to attention span. Attention spans refer to the amount of time an individual is able to focus before becoming distracted or easily bored (Oliver, 2000). Today, individuals are constantly on an information overload from both the quantity of information available and the speed of which information gets into the hands of individuals through advertising and multimedia. Attention deficits tend to be increasing as it is challenging to attract individuals and hold their attention long enough for people to read or watch messages such as work memos, advertisements, etc.

H1: The number of social media accounts has no relevance to the length of attention spans.

H2: There is no difference in attention span length amongst frequent use of episodic social media and frequent use of non-episodic social media accounts.

H3: There is no difference in attention span length amongst users preferring mobile versions of social media versus computer versions.

2. Literature Review

2.1. Social Media

Social media networks provide users with the ability to share public musings, private messages, photos, songs and videos as a means to express themselves (Keenan et al., 2009; Alexa, 2015). The internet's most visited sites are social media websites (Alexa, 2015). Social media has a specific structure for interactions inscribed into social networking sites (Bakardjieva & Gaden, 2012). The technological platforms that structure and control the social media exchanges have changed over the years from various broadcast media formats to groupware designs. Spies, Shapiro and Margolin (2014) suggests that adolescents and young adults initially dominated social networks that lead to parents' eventual entrance into the social network phenomenon. Approximately 73% of adolescents are users of social networking sites despite the terms of service for some sites restricting use to those age 13 or older (Lenhart, 2009; Lenhart, 2012; Lenhart et al., 2016). More alarming is the amount of time spent by adolescents and young adults using electronic media with the number of hours daily being as high as over 11-hours for 11-18 year olds (Kaiser Family Foundation, 2016). Users that are older such as late adolescents and emerging adults average approximately 30-minutes daily for just Facebook that does not calculate the time spent on all social media networks (Pempek et al. 2009).

Duarte and Snyder (1999) identified different modes of communication as audio, video or data. Rudall and Mann (2007) discuss how computing has shifted into combining both social and technological aspects. Some of the most used forms of technology are RSS feeds, photo and video sharing services, blogs, forums, social tagging, social networking and wikis (Chua et al., 2012). Blogs tell a story allowing anyone to voice their opinions. Wikis allow public collaboration and input. RSS feeds provide automated notifications of regularly updated content of interest. Becker and Carstens (2011) identified technology categories as collaborative project, blogs and microblogs, content communities and social networks. Collaborative projects include wikis such as Wikipedia that allows users to add, remove, and change text-based content. Another example is rating of Internet links of media content such as Reddit. Blogs and microblogs generate content shared with others that date-stamp entries. Microblogs differ from blogs in

that their content is limited such as limited characters allowed for Twitter users. Content communities such as YouTube offer the capability of sharing media among users added to their profile or for the public to view. Social networks have more extensive personal profiles where sharing of information and media among friends take place. Governments also use blogs, wikis, social networking, media sharing, microblogging and mashups (2010).

Park et al. (2012) surveyed 280 college students with research findings suggesting that frequency and preference of text-based communication technology use is dependent on multiple factors including social influence, media richness, and individual motivation. The study included examining different roles that these factors play in technology use of e-mail, cell-phone texting, and Facebook wall postings. Social circumstances were measured by asking the respondents to identify which platforms are most used by people they communicate with regularly and by the people whose opinions they value. Media richness was also measured through respondents' perspective that the platform provides timely feedback and delivers a variety of different cues beyond written messages. Individual motivation was measured by the respondents' desire to use the media for different purposes such as improving relations with friends or showing encouragement.

Table 1: Social Media Networks

Social Media	Description	Type
Facebook (2018)	Facebook is a status, picture, video, game, message and chat application.	Non-Episodic
Twitter (2018)	Twitter is a post, video, picture and message application.	Episodic
Snapchat (2018)	Snapchat is a picture, video and message application.	Episodic
Vine (2018)	Vine is a video sharing application. It contains a direct messaging feature for users to send to anyone as a SMS or email.	Episodic
Google+ (2018)	Google+ is a post, picture, video, message and multi-person video calls application.	Non-Episodic
Instagram(2018)	Instagram is a picture, video, chat and messaging application.	Episodic
Tumblr (2018)	Tumblr is a blogging tool containing multimedia and content. There is also a direct messaging feature called Fan Mail.	Non-Episodic
Pinterest (2018)	Pinterest is a bookmarking tool to post ideas of your own and to save different ideas of others.	Non-Episodic
LinkedIn (2018)	LinkedIn is a professional network where users post resume related information and connect with other users. It includes posting of status, pictures and links and sending messages. Users can endorse other users on different skills.	Non-Episodic
YouTube (2018)	YouTube is a company that allows "people to discover, watch and share originally-created videos. YouTube provides a forum for people to connect, inform, and inspire others across the globe and acts as a distribution platform for original content creators and advertisers large and small."	Non-Episodic

2.2. Online Socialability

Bakardjieva and Gaden (2012) examined the field of social interaction in general to the everyday chatter of unstructured and spontaneous interactions among individuals to highly structured and regulated interaction consisting of the military or the stock exchange. These researchers explored peer groups and the wider circle of people that user's on social media networks call "friends." Spies, Shapiro

and Margolin (2014) suggests that adolescents with social media accounts begin and end their day by checking their friends' posts or creating posts of their own. Keenan and Ali (2009) performed a study to explore sociability on different social media websites specifically identifying how users interact on Facebook, LinkedIn, MySpace and Twitter. The findings provided details on how different social websites encourage their users to interact. Facebook focused on privacy and representing the real world but in an online environment as a user profile looks like a personal scrapbook. MySpace focused on publicity and representing both, the real world and virtual world, with promotion of an online persona from film to television to music. These profiles are media-rich profile pages best suited for public promotions although it does have a private setting should that be desirable for a user. LinkedIn focused on community with profiles looking similar to resumes as the site is primarily for professional networking. Twitter focused on technology with SMS-length updates on a simple user interface allowing users to provide quick and short status updates.

Educational institutions have an online socializing component through utilizing various technology. Podcasts are audio or video files for listening purposes, where the file itself plays on either a portable media player or personal computer (2006). Podcasting first became mainstream when used as a supplement to meet the needs of students whose learning disabilities required a multimodal form of knowledge acquisition (2008). Today's undergraduate students are members of Generation D, which tune into technologies for higher education (2006). These students of Generation D seek and utilize information in a manner unlike that demonstrated by previous generations of university students; for this group, culture and motivation, as well as learning styles and lifestyles, play an important role in information seeking (2006). In higher education, convenience drives the adoption of such online technologies both at and away from home (2016).

Businesses also utilize sociability online as it provides a means for business clients, academics, and industry analysts to communicate and collaborate (Iyer et al., 2016). Vuori and Okkonen (2012) suggests that collaborative settings in a work environment based on social media principles provides added value since employees can discuss different topics with the resulting outcome being enriched information. Research focus has also examined social media as a communication tool for businesses and as a tool for customers and businesses to interact (Lukinova et al., 2014; Baird & Parasnis, 2010). Heinonen (2011) focused on customers' engagement with a particular brand. Similarly, Harvey et al. (2011) studied how social media communications assist in the creation of networks and advocates. Cammaerts (2008) looked at the strategic implications of the use of social media on corporate communication management from the point of view of the end user. Jansen et al. (2009) explored social media as word of mouth advertising assisting with marketing of a company's products and services.

3. Methodology and Results

The study consisted of 209 respondents from a private university in the southeast US that participated in the study. The self-administered questionnaires were the survey instrument developed by the researchers. The majority of the respondents (85%) were between 18 and 25 years old with the percentage of males being 70%. The predominant category for ethnicity is White (American (44%)) and International (12%) comprising 56% of the respondents' ethnicity. Table 2 includes the full demographics of the respondents.

Table 2: Demographics (n=209)

Gender	Percent
Male	69.38%
Female	30.62%
Age	Percent
18 to 25 years old	85.46%
26 to 40 years old	10.57%
41 years and older	3.96%
Ethnicity	Percent
African American	8.61%
Hispanic American	8.13%
Asian American	2.39%
American White	44.02%
American Unspecified	0.48%
Asian	8.61%
African International	3.83%
White International	11.96%
International Unspecified	4.31%
2 or more races	7.66%

Social Media Frequency. The survey instrument presented a variety of social media brands; they included Snapchat, Twitter, Instagram, Google Plus, YouTube, Facebook, Vine, Tumblr, Pinterest, and LinkedIn. Using a Likert-type scale, recording of social media frequency included separate questions of “I use XXX frequently” with options ranging from a 1 (strongly disagree) to 5 (strongly agree).

Episodic Social Media. Several social media brands utilized in the survey considered Episodic Social Media—occurring occasionally and containing loosely connected parts. These brands consist of Snapchat, Twitter, Instagram, and Tumblr.

Attention Span. A five-item Likert-type scale based on Conners (2004) measured attention span on the survey instrument. Sample items included “I lose track of what I am supposed to do” and “I am distracted when things are going on around me.” Response options ranged from 1 (strongly disagree) to 5 (strongly agree). The scale’s alpha reliability is 0.786.

H1: The number of social media accounts has no relevance to the length of attention spans.

The study used a one-way ANOVA to test this hypothesis. The groupings of the participants were based on the number of social media accounts as low, medium, and high. The low number of accounts were 1 to 3 accounts (mean = 3.0143, variance = 0.666), medium of 4 to 6 accounts (mean = 2.965, variance = 0.624), and high of 7 to 10 accounts (mean = 3.027 and variance = 0.738).

The assessment was not statistically different showing there is no difference of the means of attention span from the groupings ($F(2, 206) = 0.1223, p > 0.05$). Thus, Hypothesis 1 is accepted.

H2: There is no difference of attention span length amongst frequent use of episodic social media and frequent use of non-episodic social media accounts.

An independent-samples t test compared the mean of the attention span scale for frequent users of episodic social media (mean = 3.093, variance = 0.567) with those who were more frequent users of non-episodic social media accounts (mean = 2.904, variance = 0.717). The comparison was found to not be statistically significant, $t = 1.710, p > 0.05$. Thus, Hypothesis 2 is accepted.

H3: There is no difference of attention span length amongst users preferring mobile versions of social media versus computer versions.

A one-way ANOVA was used to test this hypothesis. Groupings of the participants were based on the preference of using mobile versions of the application, computer-based versions of the application, or,

overall, no preference. The mobile version's users' attention span mean is 2.999 (variance = 0.702), the computer-based versions users attention span mean is 2.979 (variance of 0.637), and the mean of the attention span for users who have no preference is 2.893 (variance of 0.685). The assessment was not statistically different showing there is no difference of the means of attention span from the groupings ($F(2, 713) = 0.923, p > 0.05$). Thus, Hypothesis 3 is accepted.

4. Conclusion

With the abundance of social media networks available at users' fingertips, social media is a component of individuals' lives that continues to affect how humans socialize contributing to the sociability phenomenon. The present study performed examined the number of social media accounts, frequency of use for episodic and non-episodic social media accounts and of their social media accounts and preference for mobile versions of social media versus computer versions in relationship to attention span length of users. The study findings accepted the three hypotheses. Research implications suggest that there is no difference between attention span lengths and the number of social media accounts, frequency of use or mobile versus computer preferences for accessing social media. The present study findings are important in research as it suggests the number or frequency of use of mobile devices or social media is not utilized more by those with short attention spans. The study benefits the area of industrial engineering and management through understanding how social media networks can affect users in both personal and business environments. One area of industrial engineering is human factors that focuses on negative or positive impacts of humans interacting with technology. This research benefits the area of human factors and management through the findings that suggest that the number or frequency of use of mobile devices or social media is not utilized more by those with short attention spans.

The researchers identified future research areas. One area to explore further is to understand the type of users drawn to episodic and non-episodic social media tools. This would assist businesses with which social media applications to use for advertising to specific consumers. It would be beneficial to educational institutes in helping students' access supplemental classroom materials through identification of the types of tools students use. Research focused in learning the depth that social media can play in enhancing education for students, customer relationships with companies and employee relationships with their peers are specific areas to explore. Social media networks are increasing so understanding how to utilize this social media epidemic to enhance learning, relationships and business knowledge is essential as individuals are spending an increasing amount of time on these episodic and non-episodic networks. Further research should be conducted to further explore the area of industrial engineering and management to expand upon the knowledge of positive and negative user impacts from social media network usage from both a personal and professional perspective. Social media makes individuals feel as though they have a star movie role (Bochenek & Blili, 2014). Therefore, who would not want to have a "role" in this social media craze? Social media networks have become an imprint of our everyday life and part of pop culture that revolutionize the way people communicate and in the way organizations communicate and act. Social media is a component of individuals' lives that continues to affect how humans socialize contributing to the social media phenomenon that is a growing social craze.

5. Author name(s) and affiliation(s)

Dr. Deborah Carstens, PMP is Graduate Program Chair and Professor of Human Factors at Florida Tech. She holds an MBA and a PhD in Industrial Engineering. She teaches human factors courses and serves as the Principal Investigator on several grants in the areas of safety, human factors, and social media technologies. Previously, she was a NASA KSC employee working in human factors research and project management. She has over sixty publications to include a project management tools and

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Dr. Samuel Doss is an Associate Professor of Marketing at Barry University. Dr. Doss holds a BS from Butler University, an MBA from University of Notre Dame, and a PhD from University of Texas-Pan American. He teaches a variety of courses within the marketing arena along with a specialization in business plan research. Research interests for Dr. Doss include celebrity endorsements and brand evangelism.

Mr. Stephen Kies is currently working as an Information Security Compliance Analyst with British aerospace and defense company, Cobham plc. He is a 2015 alumni of the Nathan M. Bisk College of Business at Florida Institute of Technology, having majored in both Information Systems and Business Administration: Leadership & Social Responsibility with a minor in Sustainability. He was on the Dean's list every college term and served as the President of several student organizations, notably named the University's Student Leader of the Year in 2015. As a student researcher, he focused on the areas of social media, government accountability, and usability.

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