MEDIA RICHNESS AND MESSAGE COMPLEXITY AS INFLUENCERS OF SOCIAL MEDIA ENGAGEMENT

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ABSTRACT

The master thesis “Media Richness and Message Complexity as Influencers of Social Media Engagement” seeks to identify the relationship between message complexity, media richness, and its effect on social media engagement. The literature review in this field revealed a recent trend that earlier studies tended to reject the media richness theory, whereas the recent studies, which applied the theory to social media, overwhelmingly confirmed the media richness theory. To further investigate this phenomenon, the media richness theory by Daft and Lengel (1986) will be used to derive potential predictors of social media engagement. A quantitative content analyses will be performed by exporting posts from a Facebook business page and running a multiple linear regression analysis to identify predictors of social media reach. The Facebook business page used for this study is a social media influencer brand called Linz Stanley, which has over 20,000 Facebook followers and successfully established itself in the cosplay market by publishing photos of handcrafted costumes and attendances of cosplay conferences on her social media profiles.

Keywords: media richness, message complexity, social media, engagement

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CHAPTER 1

MEDIA RICHNESS THEORY IN SOCIAL MEDIA

Why do we like a certain Facebook post and share it with our friends? Besides obvious reasons that explore personal interests and relevance of a certain topic to the individual, which are hardly generalizable and offer only a few solutions for automatic optimization processes, there are formal aspects of posting on social media that may reveal patterns to achieve social media engagement success. But is there a significant influence of a formal characteristic such as, e.g., the message complexity and media richness of a post, which can be generalized to predict social media engagement? This is a question that this thesis intends to answer.

Social media engagement is one of the most crucial measures for the success of businesses and micro-businesses on social media (Santos de Oliveira & Severo de Almeida, 2015). It is a more precise measure of audience interest in the services of a business than the number of followers because it varies with each post and allows for further analysis of the relating post type, messaging strategy, and its subelements. The media richness theory (MRT) was based on traditional communication media such as newspapers, books, magazines, television, and radio (Daft & Lengel, 1986). Over the last decade, the body of literature investigating social media phenomena grew proportionally with the broad diffusion and adoption of social media usage among the population (Aspasia & Ouraniab, 2015; Tafesse, 2014). Thus, this thesis continues a thread of

research which investigates the application of the media richness theory to social media engagement.

Problem Statement

The high competition in social media is leaving marketers uncertain as to which kinds of messages yield the highest social media engagement. When broadcasting messages on social media, it is best to know which post types are best suited to effectively accommodate all information needed to express a message with a certain complexity. The question of how to optimize social media engagement with different message complexities and post types therefore becomes a pressing issue for marketers looking to grow their audiences successfully.

Research Objective

The research objectives are to analyze the association between social media engagement, media richness, message complexity, word count, post time, day of the week, and the resulting distribution of the social media engagement measures, e.g., clicks, likes, comments, and shares. Further, a regression model shall be built to assign data-based weights to the engagement subcomponents clicks, likes, comments, and shares.

Purpose of the Study

The purpose of the study is to explore how media richness, message complexity, the existence of a question in a post, word count, post time, and day of the week contribute to social media engagement. This thesis shall test whether the assumptions of the MRT of Daft and Lengel (1986) are applicable to media richness expressed through different types of Facebook posts and their degrees of message complexity.

Nature of the Study

The theoretical basis for this thesis is the MRT by Daft and Lengel (1986), who originally made statements about the most suitable communication channel in regard to its media richness for a given communication situation. The study conducted for this master thesis is a quantitative data analysis. The data was gathered from a social media business page with over 20,000 followers.

Scope and Limitations

The analysis was conducted with a sample size of 315 Facebook posts. These posts originated from the Linz Stanley business page. One limitation of the study is the fact that naturally, certain post types, e.g., photos, enjoy a higher popularity. This could yield photos as the post type of choice, resulting in an unequal distribution of the different post types within the overall sample. Nevertheless, the sample size was still substantial enough to make statements about the general relationships between the examined variables. Furthermore, this distorted distribution towards photo posts has been observed in other scholarly studies (Aspasia & Ouraniab, 2015).

Importance of the Study

Lim, Hwang, Kim, and Biocca (2015), who analyzed real-time backchannel communication on social media sites during the airing of various television programs, emphasized the importance of future research studying direct measures from social channels instead of a survey design similar to the one utilized in their study. This further supports the research design used in this master thesis, which applies direct measurements of clicks, likes, comments, and shares. Contrary to Lim et al. (2015), this thesis does not rely on a survey method to gather indirect notions of social engagement.

One social media engagement study, which emphasized commonplace limitations in contemporary data gathering processes, was the study of Men and Tsai (2013). They suggest that the use of a web-consumer panel and its limitations yield inherent threats to generalizability (Men & Tsai, 2013). In this regard, the data gathering procedure of this thesis offers additional advantages. Since this thesis used accumulated data from Facebook users who did not deliberately sign up to be a part of a web-consumer panel, consecutive distortive effects due to self-selection are assumed to be highly reduced.

Furthermore, studies aiming to explain how social media engagement can be enhanced are particularly important because relationships between social media engagement and gross-revenue have been identified in studies researching, e.g., movie sales (Oh, Roumani, Nwankpa, & Hu, 2016; Rui, Liu, & Whinston, 2013). For this reason, this thesis is essential in establishing methods to further optimize social media engagement with the goal of increasing revenues for businesses.

Besides the research design advantages and the economic considerations that prove the relevance of this thesis, there are brand-related considerations that demonstrate an indirect monetary value established through social media engagement. Habibi, Laroche, and Richard (2016) stated that social media engagement is cardinal for building brand value. Habibi et al. (2016) emphasize that marketing managers commission major monetary investments to build their company's social media engagement because they anticipate the building of sustainable brand communities and brand loyalty, which will create sustainable revenue streams for businesses.

Originality of the Study

The original research design of this master thesis sets a precedent in the existing body of literature around the MRT. First, this thesis will add significant value to this field of research because, at the time of submitting this thesis, no scholars have investigated social media richness while incorporating one of the most eminent social media metrics, i.e., *clicks* (Aspasia & Ouraniab, 2015; Cañabate & Lebherz, 2014; Coelho, Olivera, & Almeida, 2016; Cvijikj, Spiegler, Michahelles, 2011; Kim, Spiller, & Hechte, 2015; Sabate, Berbegal-Mirabent, Su, Reynolds, & Sun, 2014; Tafesse, 2014). Clicks are especially critical to the success of small and large businesses as they are tightly connected to click-through rates and conversion rates, particularly relating to online sales. For this thesis, direct data retrieval from a Facebook business page allowed for a well-rounded sample which included the measure clicks for the first time.

Second, the analysis will introduce the concept message complexity. This measure is a derivative of the original assumptions of the MRT by Daft and Lengel (1986), which have not been previously operationalized and formally tested on its effect on clicks, likes, comments, and shares. To incorporate the new concept of message complexity, the measures *word count* and *question score* were included as independent variables in the research.

Chapter Overview

The first chapter helps readers of the thesis to gain context of the topic and related theories. Further, the main aim of the thesis is explained along with the reasons why this topic was chosen. In Chapter 2, the literature review summarizes the main literature related to the MRT and social media engagement. The literature review will start with the

main theory, expand to derived streams of research, and elaborate starting from general to more specific applications of the MRT in social media. Chapter 3 will introduce the main research questions and hypotheses. Chapter 4, the methods section, illustrates the procedure, method, and measures used to execute this study. In Chapter 5, the results section, the output of the statistical analysis will be presented. These findings will then be evaluated in Chapter 6, the discussion section, which aims to draw conclusions from the results section and evaluate how the findings confirm or challenge the existing body of literature around the MRT. This chapter also contains the conclusion, which will discuss potential future scientific studies that are worth exploring based on the findings of this study and the questions that arose from it.

CHAPTER 2

LITERATURE REVIEW

This thesis will be based on the MRT by Daft and Lengel (1986). The literature review will start with reviewing the original theory and its derivative research streams. Next, scholarly papers challenging or disconfirming the MRT will be summarized. Following the discussion regarding the general MRT and its opposing studies, which were mainly published immediately following the years of the initial publication in 1986, a funnel structure will be applied to further drill down to more specific applications of the MRT. Subsequently, the literature review will be structured from general to more specific. This means it will be narrowed down from studies that were more like the initial MRT, e.g., the MRT in organizational communication, to studies specifically exploring the MRT and its application to Facebook post types and their respective media richness. Finally, the literature review will end with studies that examine the effects of different post types on several social media metrics. Moreover, a brief overview of the most relevant studies regarding social media engagement, the central measurement in this thesis, will be given.

There are many theories competing with the MRT, among them the most prominent one, the uses and gratifications theory (UGT) which has been vastly applied to investigate why people choose certain media (Hsu, Wang, Chih, & Lin, 2015). Many scholars, particularly Lee, Hansen, and Lee (2016), try to explain the motivations behind

media selection, specifically with social media, e.g., Facebook. The UGT offers explanations for media use with focus on internal psychological motivators (Lee et al., 2016). This paints a strong contrast to the MRT (Daft & Lengel, 1986), which mostly considers formal aspects of media choice. The MRT places an emphasis on information processing capabilities of media in each communication setting and its inherent communication requirements (Daft & Lengel, 1986). To assess the *fit of media*, Daft and Lengel (1986) assert that the amount of communication, information flow, and feedback availability would inform the choice of media richness, which in turn influences communication effectiveness.

Operationalizing media selection as Facebook post type offers highly accurate research results. This is because it is possible to solely assess objective media richness instead of psychological motivators which rely on smaller data sets gathered through an experiment or a survey, which is furthermore reliant on self-report rather than on direct measurements. Therefore, this research approach, which tests the assumptions of the MRT in application to social media, will not have to rely on self-report, which further improves the validity of the study.

Media Richness Theory

The very first paper that ever introduced the notion of media richness was written by Daft and Lengel in 1983. In their initial paper, Daft and Lengel (1983) referred to the concept of *information richness*, which was later known as media richness. They explored information richness in the context of manager behavior (Daft & Lengel, 1983). Additionally, they explained how organizations process information and choose certain media with differing media richness to solve problems (Daft & Lengel, 1983). Daft and

Lengel (1983) ranked certain degrees of information richness from low (very slow feedback, visually limited channel, impersonal, numeric language, computer output) to high (immediate feedback, visual and acoustic channel, personal, body and natural language, face-to-face). Moreover, they introduced the match between information richness and complexity of organizational phenomena as crucial to successful communication (Daft & Lengel, 1983). Thence, they defined the three stages of *overcomplication* (information richness too high and complexity of organizational phenomena too low), *domain of effective information processing* (information richness degree and complexity of organizational phenomena are equal) and *oversimplification* (information richness too low and complexity of organizational phenomena too high) (Daft & Lengel, 1983). This early paper about information richness laid the groundwork for what followed later in the more refined MRT (Daft & Lengel, 1986).

Daft and Lengel (1986) developed the MRT to find out why organizations process information. The theory is established based on the concept of uncertainty avoidance and the avoidance of equivocalness (Daft & Lengel, 1986). Daft and Lengel (1986) find that organizations mainly process information to avoid task equivocality.

On the one hand, Daft and Lengel (1986) claim that technology, interdepartmental relationships, and the environment directly impact information processing requirements due to different degrees of uncertainty and equivocality.

On the other hand, in their paragraph regarding *communication technology*, they assess that meetings, integrators, planning, reports, and rules directly influence the "amount and richness of information processing" (Daft & Lengel, 1986, p. 568) required. Eventually, the match between the information processing requirements and the amount

and richness of information processing will determine the fit of a given communication tool in a certain situation (Daft & Lengel, 1986). The fit of a specific communication tool in its situational information processing requirement, in turn, will directly impact the "effectiveness achieved by matching information processing capabilities and requirements" (Daft & Lengel, 1986, p. 568).

The communication technology aspect will be the focus of this thesis. Regarding technology assessment needed to maximize communication effectiveness, Daft and Lengel (1986) maintain that depending on *analyzability* (unanalyzable to analyzable) and the *variety of information* (low to high variety), the amount of information and the degree of media richness shall accordingly be adjusted. This aspect, which is specifically mentioned in the section *technology* of Daft and Lengel's (1986) paper, will be used to derive the variables word count and question score as dimensions of message complexity.

Theoretical Streams Derived from the Original MRT

Media naturalness theory. DeRosa, Hantula, Kock, and D'Arcy (2004) took the initial MRT and adjusted it to offer more explanation as to why face-to-face communication was most suitable for equivocal messages. According to DeRosa et al. (2004), face-to-face communication represented the most natural, evolutionary caused form of communication, which is most preferred. Forms of communication which are further away from face-to-face communication are hence less favorable and require more cognitive processing (DeRosa et al., 2004).

Media synchronicity theory. Dennis, Valacich, Speier, and Morris (1998) state that media synchronicity specifically describes the opportunity for participants of a communication process to offer feedback. The theory also focuses on task

communication in organizations, as in the original MRT, claiming that they are composed of two fundamental communication processes, namely conveyance and convergence (Dennis et al., 1998).

Channel expansion theory. Carlson and Zmud (1999) also developed a derivative theory from the original MRT, the channel expansion model (CEM). As in the MRT, the focus of the CEM is also on the task communication applied by individuals within an organization (Carlson & Zmud, 1999). Kahai, Carroll, and Jestice (2007) used the CEM to explain that individuals would use leaner media to communicate equivocal messages simply because they were familiar with a certain medium and had success with it. The perceived media richness in these cases is higher based on the subjective experience and perceived media richness by an individual (Carlson & Zmud, 1999; Kahai et al., 2007).

Studies Challenging the Media Richness Theory

To challenge the MRT thirteen years after it was originally published by Daft and Lengel in 1986, Suh (1999) conducted a study to investigate whether the MRT would hold true for task information processing. Suh (1999) set up a laboratory experiment, attempting to confirm the MRT for text, audio, video, and face-to-face communication. Two tasks were given: *intellective* and *negotiation.* Suh (1999) measured *task performance* and *satisfaction* but could not find supporting evidence for the MRT. The performed ANOVA did not yield any significant results that could confirm a direct influence of the chosen media richness on task performance or satisfaction (Suh, 1999). Nevertheless, this study should be cautiously considered since the subjects were students who had limited experience with video conferencing systems and electronic mail at the

time (Suh, 1999). This was a result of a lack of the diffusion of sophisticated mainstream communication technology in the year 1999 when the study was conducted.

Timmermann (2002) found in his study that mindfulness and mindlessness needed to be accounted for to reliably explain media use as an outcome predicted by the MRT. His empirical results, however, showed that there is a lack of evidence to prove the concept of media richness (Timmermann, 2002).

Another study, which also disconfirmed the MRT, was an investigation conducted by Dennis and Kinney (1998). Higher media richness did not enhance the performance measured in "decision time, decision quality, consensus change or communication satisfaction" (Dennis & Kinney, 1998, p. 267) on the higher equivocality tasks.

Otondo, van Scotter, Allen, and Palvia (2008) conducted an experiment to test whether the MRT would hold true for US navy recruiting materials. Otondo et al. (2008) tested text, audio, and video and their influence on communication effectivity and satisfaction. They performed a factor analysis which yielded the factors symbolism, social presence, personal focus, and information overload (Otondo et al., 2008). Otondo et al. (2008) assessed the MRT by stating

> The study provides two conclusions. First, the notions of media and information richness oversimplify the complex relationships between media, message, and receiver-based communication outcomes. The second is that media richness theory is a poor predictor of the effects of media type on communication outcomes and media richness, due to its non-monotonic nature across media types, and the weak relationships between media type and media features. (p. 29).

It is important to note that the study of Dennis and Kinney (1998) along with most other studies (El-Shinnawy & Markus, 1997; Kinney & Watson, 1992; Valacich, Mennecke, Wachter, & Wheeler, 1994) which disconfirmed or only partially supported the MRT, were all conducted in the 1990s. These older studies represent a strong contrast to most of the recently published studies which confirm the MRT (Aspasia & Ouraniab, 2015; Cañabate & Lebherz, 2014; Coelho et al., 2016; Coursaris et al., 2014, Cvijikj et al., 2011; Kim et al., 2015; Sabate et al., 2014; Tafesse, 2014).

Media Richness in Organizational Communication

Initially, the MRT made predictions about communication effectiveness in organizational settings (Daft & Lengel, 1986). Many scholars followed this initial thread of research, e.g., Ahmed (2012), who specifically researched the MRT in the context of disaster management in organizations.

Trevino, Webster, and Stein (2000) investigated the effect of media richness on media choice, attitude, media behaviors, and general media, which they also applied to an organizational setting. Daft and Lengel (1986) hypothesized message equivocality to have a significant influence on media choice in organizations. Trevino et al. (2000) hypothesized that more equivocal messages will require richer media, which they confirmed. In their second hypothesis, they stated that people would favor richer media over leaner media, which was also confirmed (Trevino et al., 2000). First, Trevino et al. (2000) assumed that higher media richness will be able to predict media choice. Second, they assumed that higher media richness was proposed to positively impact media attitude. Third, it was hypothesized that higher media richness would lead to higher

utilization (Trevino et al., 2000). The first two hypotheses were supported, while the third one was not supported based on the findings in their study (Trevino et al., 2000).

Sheer and Chen (2004) attempted to improve the MRT. Their findings confirm the MRT for positive messages. In their study, Sheer and Chen (2004) operationalized positive messages as messages which deliver positive feedback from a manager to a subordinate, enhancing the relationship as a result. Moreover, Sheer and Chen (2004) account for message complexity in regard to media choice. According to Sheer and Chen (2004), message complexity strongly influences media choice.

Media Richness Across Different Kinds of Media

Many studies were conducted to compare media richness across different media. Park, Chung, and Lee (2012) compared e-mails to cell-phone texting and to Facebook wall postings to see how media richness differs in different text-based media.

Lee, Sun, and Thiry (2011) performed an analysis of media richness in an online dating setting. Besides exploring other relevant theories such as the information processing theory to explain the engagement with certain online dating profiles, they used the MRT in combination with the sufficiency principle to build their theoretical framework (Lee et al., 2011). According to Lee et al. (2011), the sufficiency principle further supports the MRT, claiming that the least effort needed to decode a message is optimal in order to minimize the cognitive effort. The MANOVA of Lee et al. (2011) yielded that the different medium formats of online dating profiles had significant influences on the perception of the person, behavioral intentions, and memory.

Lan and Sie (2010) performed a comparative study in regard to timeliness, accuracy, and media richness in social media networks, email, and rich site summary

(RSS). RSS is used by people to receive news updates on regularly changing web content. The goal of the study was to find out how mobile learning could be enhanced by various levels of media richness (Lan & Sie, 2010). Lan and Sie (2010) found that email was richer in content than social media and RSS. Hence, Lan and Sie (2010) recommended using email more exhaustively to communicate vast amounts of information. Sun and Cheng (2007) conducted a study to identify the optimal approach to promoting consistent learning using the MRT. In an experimental research design, Sun and Cheng (2007) created four e-Learning instructional guides to find out which media type has the best fit to maximize the learning score and the learning satisfaction score. They confirmed that high media richness had a significant effect on the learning score (Sun & Cheng, 2007). Furthermore, Sun and Cheng (2007) ascertained, especially for the equivocal and uncertain communication situations, that the high media richness communication materials yielded a significantly higher impact on learning satisfaction than the low media richness materials.

Media Richness Theory in Social Media

Daft and Lengel (1986) formulated their theory in application to organizations. Organizations are governed by and comprised of human social interactions, which therefore shape the interactions between members and their actions within the organization (Daft & Lengel, 1986). Human behavior of individuals is the underlying concept that also describes the causes and effects described in the MRT (Daft & Lengel, 1986). Hence, the theory can be applied to other communication situations in which human behaviors occur because of general human psychology. More specifically, the MRT is highly applicable in communication fields which involve information processing

of highly complex versus less complex messages. These situations eventually yield different levels of equivocality and uncertainty for which the media richness shall be accordingly adjusted (Daft & Lengel, 1986). Anandarajan, Zaman, Dai, and Arinze (2010) used the MRT, the CEM and the technology acceptance model to investigate the interaction effects of subjects' instant messaging within Generation Y. Their research focus makes this study especially interesting since this thesis will examine Facebook, which is mainly driven by people who belong to Generation Y. In their conceptual framework, Anandarajan et al. (2010) synthesized the MRT, the CEM, and the technology acceptance model. They hypothesized that the *perceived ease of use* would lead to *perceived usefulness* and *perceived social usefulness* (Anandarajan et al., 2010). In turn, the *perceived media richness* would influence the *perceived social usefulness* (Anandarajan et al., 2010). All of these factors would finally influence the *use richness* (Anandarajan et al., 2010). Anandarajan et al. (2010) confirmed their hypotheses.

Post types on Facebook and their effects on engagement. Aspasia and Ouraniab (2015) investigated the social media interactions of Greek food manufacturing firms with their audiences on Facebook, specifically focusing on media richness, intensity, and responsiveness. In a descriptive analysis, they investigated whether the Greek food manufacturers were following the trends of contemporary consumer demands (Aspasia & Ouraniab, 2015). They also regarded engagement as a central metric in their study. Aspasia and Ouraniab (2015) found an uneven distribution of post types, with a majority (73%) of the posts representing photos, 5% being videos, and 12% being link posts. In conclusion, the study found that the investigated firms effectively utilized rich communication vehicles (Aspasia & Ouraniab, 2015). Moreover, they found that the

firms could invoke a high level of engagement by responding to consumers' comments below their posts (Aspasia & Ouraniab, 2015).

Kang, Tang, and Fiore (2014) also reviewed restaurants and their Facebook pages online. They revealed that fan pages which offered social–psychological and hedonic benefits were significantly more visited than pages which did not offer these benefits (Kang et al., 2014).

Kim et al. (2015) conducted a similar study among the five product categories "convenience, shopping, specialty, industrial and service" (p. 14). On the content side, they decided to code for *self-oriented, interaction-oriented,* and *task-oriented* posts (Kim et al., 2015). Kim et al. (2015) examined the media types text, photo, and video. Like Aspasia and Ouraniab (2015), the overwhelming majority of posts investigated in Kim et al. (2015) were photos (73.8%), followed by videos (11.7%), text only (11.4%), and URLs with 3%. Kim et al. (2015) measured consumer engagement in response to post types in likes, comments, and shares. Kim et al. (2015) found that photo posts generated more consumer responses than text-only posts. Kim et al. (2015) also stated that photo posts outperformed video posts. Video posts, however, generated better consumer responses than text only posts (Kim et al., 2015).

Sabate et al. (2014) researched brand post popularity in relation to media richness using data from five Spanish travel agencies. Sabate et al. (2014) examined the post types image, link, and video. They created a model for likes and comments separately (Sabate et al., 2014). Thus, they conducted an ANOVA and found a model for likes that could explain 55% of the variance with a p-value of .001. Unlike the earlier findings of Kim et al. (2015) and Aspasia and Ouraniab (2015), Sabate et al. (2014) reported that video

(B = .99) had the highest impact on likes followed by images (B = .673), followers (B = .632) and characters (B = .003). For comments, however, Sabate et al. (2014) found a different model with images (B = .813) being the most influential on brand post popularity, followed by time (B = .651), followers (B = .293), and links (B = –.627). The latter is an interesting finding which can lead to the conclusion that links are counterproductive to spark engagement since traffic is routed to an external website where users are less likely to return to the initial post and leave comments there (Sabate et al., 2014).

Coelho et al. (2016) also measured social media engagement across different business pages on Facebook by examining likes and comments. The post typology analysis, however, was done differently than in the predominant studies (Coelho et al., 2016). Instead of using the default post type categories image, video, URL, and status, Coelho et al. (2016) defined the categories advertising, event, fan, information, and promotion. They also created two models for likes and comments, which yielded similar results to the ones that Sabate et al. (2014) reported.

Cvijikj et al. (2011) analyzed 1049 posts from 14 major Facebook brand pages across different industries. They investigated the effects of moderator posts on fan pages regarding post type, date, interaction duration, likes, and comments. Referring to Cvijikj et al. (2011), the post types status, photo, link, and video were examined. Prior studies (Aspasia & Ouraniab, 2015; Kim et al., 2015) revealed the trend that photo posts were most often used on Facebook fan pages, which was not reflected in the sample of Cvijikj et al. (2011). Taking into consideration that Cvijikj et al.'s (2011) study was executed prior to the findings of Aspasia and Ouraniab (2015) and Kim et al. (2015), it would be a

valuable contribution to study whether this reflected a recent trend towards photo type posts. In summary, Cvijikj et al. (2011) found a significant influence of post type on likes, comments, and interaction duration. Furthermore, Cvijikj et al. (2011) coded the posts for content: information, designed questions, statements, advertisements, and competitions. The results revealed that post category also had a significant effect on likes, comments, and interaction duration (Cvijikj et al., 2011).

Tafesse (2014) analyzed 194 UK automotive brand posts. Differently to the existing body of literature in the field, Tafesse (2014) ran a Poisson regression and modeled for likes and shares. The inclusion of shares as a target metric exceeded the existing regression models that were formulated to explain likes and comments up until then. Shares is one of the strongest measurements for engagement because it requires the highest amount of cognitive involvement and it promotes the visibility of brand posts organically. This is especially desired by brands because it reduces the needed media budget spent due to the incoming organic traffic. In this valuable study, Tafesse (2014) found that brand post vividness had a significant influence on shares but not on likes. Over and above, novelty and consistency were found to have a significant influence on likes and shares (Tafesse, 2014).

Su et al. (2014) also investigated which kinds of post types would be most beneficial to spark likes on Facebook. In their study, Su et al. (2014) specifically researched hotel Facebook pages. Su et al. (2014) conducted a content analysis to unravel how the engagement of Facebook posts could be enhanced. The coders coded for text, picture, and video and counted shares, likes, and comments for each post (Su et al., 2014). Besides these objective variables, Su et al. (2014) also tested for more complex

variables such as post character, e.g., *question, follow request*, and *famous quote*. Su et al. (2014) found that posts with pictures were more likely to be shared by fans than posts without pictures.

McKay (2015) conducted a study specifically for engagement in the non-profit sector and approached the research from a content perspective. Rather than categorizing by post type, the posts were coded by purposes, e.g., *donation appeal* or *selling a product*. McKay's (2015) main finding is that "nonprofit organizations should focus on content that calls people to action like messages asking users to participate in lobbying and advocacy activities" (p. 47).

Coursaris, van Osch, and Balogh (2016) conducted a study which examined media richness of Facebook posts in regard to their post typology. Coursaris et al. (2016) found that higher media richness generally sparked more engagement, which were measured in likes, comments, and shares. Their literature review revealed that there were only about seven studies when Coursaris et al. (2016) published their article that was somewhat related to social media and media richness. However, none of them were specifically performed for Facebook post types in regard to media richness and post typologies. They stated that these studies were not sufficient, rather one-sided, and not generalizable enough to explain the connection between post type and media richness (Coursaris et al., 2016). They coded URL's, image, and video posts as *rich* media, and text posts as *lean* media in a multi-case study of three major brand Facebook pages (Coursaris et al., 2016). Coursaris et al. (2016) coded posts in two content categories "abstract—namely, brand awareness, corporate social responsibility (CSR), and customer service—other categories are concrete—namely, promotional and seasonal messages" (p.

15). The study confirmed the hypothesis that abstract content messages would significantly be correlated with richer media (Coursaris et al., 2016). In their study, however, they hypothesized only about abstract messages (Coursaris et al., 2016), which is why there is a need to explore the relationship of concrete posts and their media richness association. Furthermore, Coursaris et al. (2016) did not research how the choice of the media richness for each content category affected the engagement rate. Hence, the investigation of that relationship is substantiated due to the identified gap in the literature.

Social media engagement. An (2016) conceptualized a model to explain which factors influence social media engagement. According to An (2016), engagement is driven by *functional benefits*, *emotional benefits,* and *self-expressive benefits*.

De Vries, Gensler, and Leeflang (2012) hypothesized the variables *vividness, valence of comments, informational content, interactivity, number of likes, position*, and *entertaining content* to have a significant effect on brand engagement on Facebook. Some of these variables were coded on a scale that could also be interpreted as partial measures for media richness. Pictorial posts, for example, could be described as *low vividness* posts, whereas *videos* could be described as *high vividness* posts (De Vries et al., 2012). High levels of vividness had a significant influence on likes, whereas low levels of vividness did not have a significant influence on likes (De Vries et al., 2012). Thus, vividness can be utilized as a measure of media richness (De Vries et al., 2012). Interactivity, as investigated by De Vries et al. (2012), is another variable which is similar to the criteria *availability of feedback* in Daft and Lengel's (1996) initial MRT. Links to websites were coded as low interactivity, whereas voting was coded as high interactivity. Hence, interactivity examined in the study of De Vries et al. (2012) could be

seen as a second measure for media richness. Surprisingly, there was no relation found for low and medium levels of interactivity. In contrast, significantly negative effects were found for high levels of interactivity (De Vries et al., 2012). To maximize engagement, managers are advised to use posts with medium or high vividness and combine it with medium interactivity. This is because highly interactive posts, e.g., posts about a question, had negative effects (De Vries et al., 2012).

Adjustment of the MRT to Fit the Study

Since the study of Daft and Lengel (1986) was published thirty years ago, it is now particularly interesting to explore how this classic communication theory can be applied to current communication channels that bear new intrinsic communication challenges. Since the rise of social media, small, medium, and large businesses are essentially forced to participate in online communication to represent their identities online and stay competitive. The goals of businesses online are similar to the general goals proposed by Daft and Lengel in 1986. The goal is to achieve the highest communication effectivity by reducing uncertainty and equivocality while considering the information complexity and its residual situational information processing requirements. In Daft and Lengel's (1986) study, success was expressed as task comprehension. In regard to social media, the effectiveness and success of a communication message can be measured by its direct response from recipients of the message in the form of clicks, likes, comments, and shares. For this master thesis, engagement will hence be used as a measure to confirm the effectivity of a message.

CHAPTER 3

RESEARCH QUESTIONS AND HYPOTHESES

Each research question investigates the relationship of the independent variables day of the week (RQ1), post time (RQ2), question score (RQ3), word count (RQ4), and media richness (RQ5) on the dependent variables clicks, likes, comments, and shares (Figure 1).

This thesis exceeds the depth of research that other scholars have covered in regard to media richness so far, as it accounts for the additional measure clicks, which was formerly not accessible to scholars who published their work mainly based on the publicly accessible metrics likes, comments, and shares. Additionally, the lack of a compound formula for social media engagement was identified, which will be addressed in RQ6.

Day of the Week

All reviewed literature regarding the MRT and its application in a social media setting revealed another common shortcoming of existing research studies: The engagement research was focused on a content analysis of easily accessible metrics like post type but did not account for other metrics such as post time and day of the week, which often play a crucial role when optimizing for engagement on social media (Ellering, 2016).

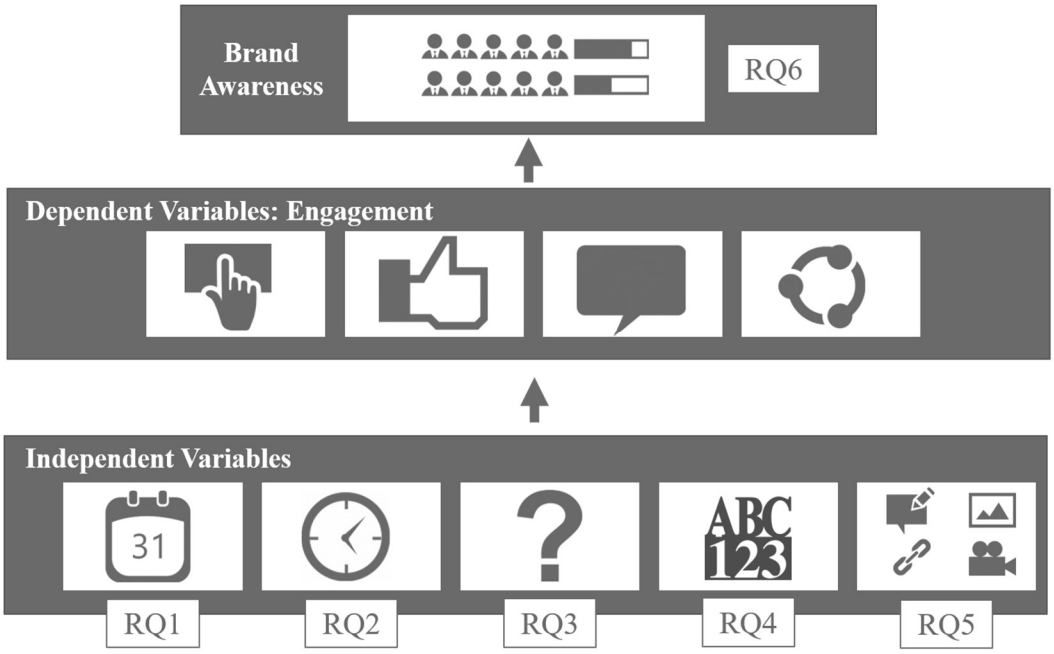

Figure 1. Research question overview.

RQ1: Will different posts published on different days of the week result in significantly different levels of social media engagement?

H1.1: The number of clicks will be significantly different on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week.

H1.2: The number of likes will be significantly different on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week.

H1.3: The number of comments will be significantly different on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week.

H1.4: The number of shares will be significantly different on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week.

Post Time

RQ2: Will different post times result in significantly different levels of social media engagement?

H2.1: The number of clicks will be significantly different for different post times.

H2.2: The number of likes will be significantly different for different post times.

H2.3: The number of comments will be significantly different for different post times.

H2.4: The number of shares will be significantly different for different post times.

Question Score

In recent studies testing the MRT, a lack of consideration for message complexity explaining social media engagement was found (Aspasia & Ouraniab, 2015; Coelho et al., 2016; Cvijikj et al., 2011; Kim et al., 2015; Sabate et al., 2014; Tafesse, 2014).

Daft and Lengel (1986), on the other hand, clearly emphasized the importance of message complexity and media richness in each communication situation. Depending on the level of uncertainty or equivocality, message complexity and media richness need to be adapted (Daft & Lengel, 1986). If a post contains a question, invoking the audience to contemplate about an answer, it can hence be assumed that the message complexity will be different in posts which do not contain questions.

RQ3: Will the occurrences of a question in a post result in significantly different levels of social media engagement?

H3.1: The number of clicks will be significantly different for posts that contain a question versus no question.

H3.2: The number of likes will be significantly different for posts that contain a question versus no question.

H3.3: The number of comments will be significantly different for posts that contain a question versus no question.

H3.4: The number of shares will be significantly different for posts that contain a question versus no question.

Word Count

Daft and Lengel (1986) address the need for a "large amount of information" (p. 563) when a communication situation tends to be unanalyzable and exhibits a high amount of variety. Furthermore, Daft and Lengel (1986) stated that the "amount and richness of information processing" (p. 563) is key to determining the fit of a certain message in each situation. Therefore, it can be argued that the word count, being representative of the amount of information that Daft and Lengel (1986) mention, can be assumed to have a significant influence on social media engagement (Daft & Lengel, 1986).

RQ4: Will varying levels of word count result in significantly different levels of social media engagement?

H4.1: The number of clicks will be significantly different for different levels of word count.

H4.2: The number of likes will be significantly different for different levels of word count.

H4.3: The number of comments will be significantly different for different levels of word count.

H4.4: The number of shares will be significantly different for different levels of word count.

Media Richness

The early studies that proceeded shortly after the MRT was initially published challenged the assumptions of the MRT and could only offer partial or no support for the theory (Dennis & Kinney, 1998; El-Shinnawy & Markus, 1997; Kinney & Watson, 1992; Valacich et al., 1994). Newer studies, which examined media richness in its relation to social media, however (Aspasia & Ouraniab, 2015; Coelho et al., 2016; Cvijikj et al.,

2011; Kim et al., 2015; Sabate et al., 2014; Tafesse, 2014) revealed an overwhelming majority in support of the MRT.

RQ5: Will varying degrees of the media richness result in significantly different levels of social media engagement?

H5.1: The number of clicks will be significantly different for different media richness values.

H5.2: The number of likes will be significantly different for different media richness values.

H5.3: The number of comments will be significantly different for different media richness values.

H5.4: The number of shares will be significantly different for different media richness values.

Social Media Post Reach

The only prevailing formula which attempted to calculate social media engagement using its subelements likes, comments, and shares used arbitrary weights (0.5 for likes, 1 for comments, and 1.5 for shares) (Coursaris et al., 2016). In this thesis, a goal-oriented approach will be used to assign weights to the engagement sub-components.

The goal of social media engagement in brand awareness campaigns is *social media post reach*. Social media post reach can be defined as the number of unique people reached with a certain post. Marketing and social media campaigns usually have either one of the following objectives: increasing sales or promoting brand awareness.

The goal of brand awareness is often measured in post reach of campaigns because reaching people is a prerequisite for brand awareness. Based on that, post reach is a crucial goal metric in social media optimization. But how should people optimize their posts to gain the greatest visibility within the network? The regression on post

reach with the factors clicks, likes, comments, and shares will determine how each factor contributed to the overall reach of a post. Hence, a better and more well-rounded compound formula will be introduced, using the goal of social media engagement, which is social media post reach. It shall be noted that the regression model will hence be specifically tailored to social media engagement in a brand awareness context.

RQ6: How do clicks, likes, comments, and shares contribute to the reach of a social media post?

CHAPTER 4

METHODOLOGY

Overview

This thesis was conducted in an influencer brand market, specifically the market for cosplay social media influencers. Cosplaying is the art of creating self-made costumes and dressing up as superheroes, comic figures, or other cartoon characters that are popular. Linz Stanley, whose Facebook page was used as a primary data source, is listed in the category fan page. Stanley, who runs the aforementioned page, is a 27-year-old female cosplayer who uses her page to showcase her lifestyle, costumes, and positive body messages.

Measures

Social Media Engagement

In accordance with the prevailing literature, likes, comments, and shares were used to measure social media engagement (Mandal, 2015). According to Mandal (2015), these metrics are cardinal to the success of micro businesses, since they can be "linked to the higher capabilities of the key objectives, such as higher awareness, higher engagement, higher word of mouth which would consequently lead to higher purchase intent" (p. 358).

In addition to that, this thesis will even account for clicks, a metric that Aspasia and Ouraniab (2015) did not measure in their own study but attributed a high importance

to in the discussion of their paper. Stating "Facebook defines engagement as: 'Engaged users is the number of people who have clicked anywhere on your post'" (p. 310), Aspasia and Ouraniab (2015) reemphasize the need to include clicks as a central metric for engagement. In their study, Aspasia and Ouraniab (2015) found that the operationalization of the measurement engagement as executed in Coursaris et al.'s study (2016) was insufficient, as it left out clicks, one of the most basic and important metrics of engagement. Clicks may be the least cognitively challenging form of engagement but it is the most occurring engagement action (Aspasia & Ouraniab, 2015).

Instead of combining the dependent variables clicks, likes, comments, and shares into one compound measure of social media engagement, this thesis will test the effects of the independent variables on these subelements of social media engagement separately.

Media Richness Value

Since the study will be applied to Facebook, media richness will be operationalized as social media post type, which is consistent with existing literature evolving around media richness and social media (Aspasia & Ouraniab, 2015; Coelho et al., 2016; Cvijikj et al., 2011; Kim et al., 2015; Sabate et al., 2014; Su et al., 2014; Tafesse, 2014). Timmermann (2002) conducted a study to further refine the MRT and utilized the following criteria, which were derived from the initial study of Daft and Lengel in 1986 to operationalize media richness "(a) Potential for immediate feedback, (b) Capacity for multiple cues (audio, visual, etc.), (c) Ability to convey natural language, and (d) Personal focus" (p. 112). Consequently, these aspects were assessed when the post types were coded for media richness.

The post types which were used for this thesis were status (text only: lowest media richness), photo (photo with or without text: second lowest media richness), link (status containing additional link, where the link will be previewed as an image in the Facebook news feed: third lowest media richness), and video (video uploaded on Facebook with or without text: highest media richness). To execute the analysis, the media richness value was classified into the following groups: Group 1 (status [media richness value = 1]), Group 2 (photo [media richness value = 2]), Group 3 (link [media richness value = 3]), and Group 4 (video [media richness value = 4]).

Status posts were identified as the lowest in media richness because they did not offer the same degree of non-verbal information as other post types. At best, the audience can decode textual emoticons as non-verbal cues. These cues, however, are less expressive than images or videos and more prone to be deliberately chosen. Hence, they do not capture authentic context through organic non-verbal communication cues.

Photo posts were assigned to be the second lowest in media richness. This is because link posts offered an image as a preview in addition to text and the forwarding to an external information source, making link posts higher in media richness than photo posts.

Video posts were identified with the highest media richness because they offered all the lower order category features and additionally dynamic, audiovisual, verbal, and non-verbal cues.

Message Complexity

When examining message complexity and of what it is composed, Daft and Lengel (1986) mention *variety of information* and *analyzability* as crucial elements. In

this thesis, word count and question score represent the concepts of the variety of information and analyzability.

Word count. The first element of message complexity is word count. This measure represents the variety of information that Daft and Lengel (1986) describe in their paper because a higher variety of information can be expressed in a post with 150 words compared to a post with three words. To test whether there was a significant difference in engagement for different groups of word counts, the variable was grouped into *low* word count (0 to 19 words), *medium* word count (20 to 111 words), and *high* word count (112 to 450 words).

Question score. Upon examining the raw data, another pattern became evident: Self-reflective posts that urged audience members to offer feedback, opinions, help, or support were usually posted as a question. This type of post tends to be more complex, convoluted, ambiguous, and harder to analyze than straightforward posts containing no questions. Hence, this differentiation for questions specifically addresses the analyzability that Daft and Lengel (1986) mentioned as a subcomponent of message complexity. Subsequently, the question score will be coded into two groups: Group 1 [question score = 1; if the posts contain no question] and Group 2 [question score = 2, if there is a question in the post]. On May 7, 2016, Stanley published the following post to the Linz Stanley page, which illustrates well why complex posts usually entail question, encouraging the audience to join a discussion about an ambiguous topic:

> WOW. I am absolutely appalled, disheartened, and upset at how many terrible comments this gif of the super gorgeous Vertvixen has received. Here, Street Fighter shares her stunning Cammy cosplay in action and all ANYONE can

> comment on is "how flat her ass is". Uhh, are you fucking kidding me? First of all, Vertvixen's ass is *not* flat. I've had that thing dance all over me at Club Cosplay and it's perfect. SERIOUSLY. YOU SHOULD SEE THIS GIRL IN PERSON. Second, the *ONLY* thing people can comment on is her ass in comparison to a "video game" or "statue" ass? Have any of you realized yet that VIDEO GAME CHARACTERS AND COMIC BOOK CHARACTERS ARE PHYSICALLY UNREALISTIC TO HAVE!?! Coming from a girl who has an ass (me), you can't REALISTICALLY have a fake plastic-looking ass UNLESS YOU GET A FAKE PLASTIC-LOOKING ASS VIA IMPLANTS. I don't care HOW MANY squats you do in the gym IT WILL NEVER LOOK EXACTLY LIKE A VIDEO GAME CHARACTER. I'm disappointed in you Street Fighter for not stepping in and defending her. You're just letting the comments pile up with more and more hate. Disgusting. Now - go leave Vertvixen some love and tell her how AWESOME her COSPLAY is! *NO ONE* deserves this kind of hate in the cosplay community - NO ONE, especially not someone as sweet as she is. What is it going to take for people to STOP acting this way? Let's change that and spread some positivity, love, and admiration for people's talents instead of how their body compares to a fake video game woman. GO SHOW HER SOME LOVE! Xoxo. (Stanley, 2016).

Day of the Week

To refine the MRT to be applicable to social media engagement, the variable day of the week was examined to assess whether this measure plays a significant role in social media engagement. Since day of the week was a nominal variable in the raw data,

it had to be recoded into a binary dummy variable in order to apply the Mann-Whitney *U* test. To most reliably determine how the binary variable should be grouped, a recent brand study which examined industry data was used to predict group limits with the highest anticipated social media engagement differences (Ellering, 2016). Ellering (2016) claimed that engagement would be higher on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week. Thus, the groups for this thesis were coded as Group 1 (high days = 1 [Thursdays, Fridays, Saturdays, and Sundays]) and Group 2 (low days = 0 [Mondays, Tuesdays, and Wednesdays]).

Post Time

A similar approach was chosen for post time as for day of the week. Post time was retrieved from the raw data and had to be recoded into a binary dummy variable. To define the two groups, the study of Ellering (2016) was utilized to define two groups that would have the highest predicted disparity in social media engagement. The time frames suggested by Ellering (2016) were slightly adjusted to ensure sufficient samples sizes in both groups. Thus, the groups were defined as follows: Group 1 (high times = 1 [9 am to 11 am and 1 pm to 5 pm]) and Group 2 (low times = 0 [11 am to 1 pm and 5 pm to 9 am]). Finally, a Mann-Whitney *U* test was performed to test whether the different post times resulted in significantly different levels of engagement.

Procedure

Raw data from the fan page of Linz Stanley was exported from Facebook Insights for the time frame between 11/01/2015 and 09/04/2016 ($N = 314$). Next, the raw data was downloaded and exported into a Microsoft Excel file. From there, the data was prepared and the key measures media richness, question score, word count, post time, and day of

the week were coded as described in this chapter. The program Microsoft Excel was used to code the compound variables, whereas SPSS was used to test the hypotheses.

Assumption Testing

First, the data needed to be tested for normal distribution using the Kolmogorov-Smirnov test to determine whether the prerequisites for parametric tests were met. Due to the results of the Kolmogorov-Smirnov test, the non-normal distribution of all dependent and independent variables was determined (p-value < .0001). Hence, the prerequisites for parametrical statistic tests were not met for the independent variables. Therefore, the analysis proceeded by using non-parametric tests. In contrast to parametric tests, which evaluate the differences in means for the groups, the non-parametric tests rank the data sets and compare the differences in the medians to account for the non-normality of the data.

Hypotheses Testing

For the variables media richness and word count, which contained more than two groups each, the Kruskal-Wallis H test was used. For all variables containing only two groups (question score, day of the week, and post time), the Mann-Whitney U test was used to determine significant differences between the groups.

Social Media Reach

In the past, there have been attempts to describe social media engagement. Such an attempt was, e.g., made by Coursaris et al. (2016), who assigned different weights to the subcomponents likes, comments, and shares. The least weight was assigned to factors which required the least amount of cognitive processing. Coursaris et al. (2016) used the following formula to express social media engagement:

"Weighted engagement = 0.5 x ∑(L) + 1 x ∑(C) +1.5 x ∑(S)" (p. 15). In their formula, *L* was used for likes, *C* was used for comments, and *S* was used for shares (Coursaris et al., 2016).

Due to the arbitrariness of the weights assigned in the formula, RQ6 was formed to improve the status quo of social media engagement quantification. A regression analysis using clicks, likes, comments, and shares as predictors of post reach was performed. Hence, the new weights from the regression will be more valuable than the old arbitrarily assigned weights used by Coursaris et al. (2016), since the results of the regression will be based on quantitative derivation. Furthermore, using the results of the regression is more advantageous to scholars and practitioners because the theoretical derivation of post reach as an independent variable was chosen based on the goals of the practitioners. This differs from the approach of Coursaris et al. (2016), who only considered the cognitive effort required for executing a communication action. Indeed, social media research should help practitioners of social media to achieve their goals. As such, the chosen goal-oriented approach is preferable to the effort-based theoretical derivation used by Coursaris et al. (2016).

CHAPTER 5

RESULTS

Assumption Testing

First, the Kolmogorov-Smirnov test was applied to determine whether the distribution of the sample was significantly different from the normal distribution, which is a prerequisite to perform parametric tests.

In the sample, the distribution of the variables media richness ($D(314) = .489$, $p < .001$), question score ($D(314) = .472$, $p < .001$), word count ($D(314) = .283$, $p < .001$), post time ($D(314) = .076$, $p < .001$), and day of the week ($D(314) = .142$, $p < .001$), did significantly deviate from normality (Table 1). Therefore, non-parametric tests were used to examine the hypothesis.

Table 1. Tests of Normality - Kolmogorov-Smirnov Test

Variables	Statistic	df	*p*-value
Media Richness	.489	314	.000***
Question Score	.472	314	.000***
Word Count	.283	314	.000***
Post Time	.076	314	.000***
Day of the Week	.142	314	.000***

Hypothesis Testing

Day of the Week

RQ1: Will different posts published on different days of the week result in significantly different clicks, likes, comments, and shares?

H1.1: The number of clicks will be significantly different on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week.

The Mann-Whitney *U* test indicated that the number of clicks was not significantly different ($U(1) = 11478$, $p < .671$) on Thursdays, Fridays, Saturdays, and Sundays ($M = 128$) compared to the rest of the week ($M = 116$).

H1.2: The number of likes will be significantly different on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week.

The Mann-Whitney *U* test indicated that the number of likes was not significantly different ($U(1) = 11148$, $p < .399$) on Thursdays, Fridays, Saturdays, and Sundays ($M = 72$) compared to the rest of the week ($M = 66$).

H1.3: The number of comments will be significantly different on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week.

The Mann-Whitney *U* test indicated that the number of comments was not significantly different ($U(1) = 11510$, $p < .700$) on Thursdays, Fridays, Saturdays, and Sundays ($M = 4$) compared to the rest of the week ($M = 5$).

H1.4: The number of shares will be significantly different on Thursdays, Fridays, Saturdays, and Sundays compared to the rest of the week.

The Mann-Whitney *U* test indicated that the number of shares was not significantly different ($U(1) = 10790.5$, $p < .137$) on Thursdays, Fridays, Saturdays, and Sundays ($M = 0$) compared to the rest of the week ($M = 0$).

Post Time

RQ2: Will different post times result in significantly different clicks, likes, comments, and shares?

H2.1: The number of clicks will be significantly different for different post times.

The Mann-Whitney *U* test indicated that the number of clicks was not significantly different ($U(1) = 6539.5$, $p < .778$) between the post times of Group 1 [high times] ($M = 125$) and Group 2 [low times] ($M = 124$).

H2.2: The number of likes will be significantly different for different post times.

The Mann-Whitney *U* test indicated that the number of likes was not significantly different ($U(1) = 6571.5$, $p < .82$) between the post times of Group 1 [high times] ($M = 68$) and Group 2 [low times] ($M = 71$).

H2.3: The number of comments will be significantly different for different post times.

The Mann-Whitney *U* test indicated that the number of comments was not significantly different ($U(1) = 6447.5$, $p < .661$) between the post times of Group 1 [high times] ($M = 5$) and Group 2 [low times] ($M = 5$).

H2.4: The number of shares will be significantly different for different post times.

The Mann-Whitney *U* test indicated that the number of shares was not significantly different ($U(1) = 5743$, $p < .063$) between the post times of Group 1 [high times] ($M = 0$) and Group 2 [low times] ($M = 1$). The results of the test showed, however, that the difference was approaching significance with a *p*-value of .063.

Question Score

RQ3: Will the occurrence of a question in a post result in significantly different clicks, likes, comments, and shares?

H3.1: The number of clicks will be significantly different for posts that contain a question versus no question.

The Mann-Whitney *U* test indicated that the number of clicks was not significantly different ($U(1) = 8499$, $p < .429$) between posts that contained a question ($M = 120.5$) versus posts that contained no question ($M = 125.5$).

H3.2: The number of likes will be significantly different for posts that contain a question versus no question.

The Mann-Whitney *U* test indicated that the number of likes was significantly different ($U(1) = 7266$, $p < .010$) between posts that contained a question ($M = 52$) versus posts that contained no question ($M = 72.5$).

H3.3: The number of comments will be significantly different for posts that contain a question versus no question.

The Mann-Whitney *U* test indicated that the number of comments was not significantly different ($U(1) = 8211$, $p < .225$) between posts that contained a question ($M = 5$) versus posts that contained no question ($M = 4$).

H3.4: The number of shares will be significantly different for posts that contain a question versus no question.

The Mann-Whitney *U* test indicated that the number of shares was not significantly different ($U(1) = 9026.5$, $p < .977$) between posts that contained a question ($M = 0$) versus posts that contained no question ($M = 0$).

Word Count

RQ4: Will varying degrees of word count result in significantly different clicks, likes, comments, and shares?

H4.1: The number of clicks will be significantly different for different word counts.

The Kruskal-Wallis *H* test showed that there was no statistically significant difference ($\chi^2(2) = .240$, $p < .887$) in clicks between the word count groups low (M = 131), medium ($M = 119$), and high ($M = 118$).

H4.2: The number of likes will be significantly different for different word counts.

The Kruskal-Wallis *H* test showed that there was a statistically significant difference ($\chi^2(2) = 10.002$, $p < .007$) in likes between the word count groups low (M = 83), medium ($M = 67$), and high ($M = 50.5$).

H4.3: The number of comments will be significantly different for different word counts.

The Kruskal-Wallis *H* test showed that there was a statistically significant difference ($\chi^2(2) = 6.138$, $p < .046$) in comments between the word count groups low ($M = 4$), medium ($M = 5$), and high ($M = 5$).

H4.4: The number of shares will be significantly different for different word counts.

The Kruskal-Wallis *H* test showed that there was no statistically significant difference ($\chi^2(2) = 2.322$, $p < .313$) in shares between the word count groups low ($M = 0$), medium ($M = 0$), and high ($M = 0$).

Media Richness

RQ5: Will varying degrees of the media richness result in significantly different clicks, likes, comments, and shares?

H5.1: The number of clicks will be significantly different for different media richness values.

The Kruskal-Wallis *H* test showed that there was a statistically significant difference ($\chi^2(3) = 25.321$, $p < .001$) in clicks between statuses ($M = 10$), photos ($M = 125.5$), links ($M = 89$), and videos ($M = 233$).

H5.2: The number of likes will be significantly different for different media richness values.

The Kruskal-Wallis *H* test showed that there was a statistically significant difference ($\chi^2(3) = 14.112$, $p < .003$) in likes between statuses ($M = 12$), photos ($M = 74$), links ($M = 44$), and videos ($M = 48$).

H5.3: The number of comments will be significantly different for different media richness values.

The Kruskal-Wallis *H* test showed that there was no statistically significant difference ($\chi^2(3) = 1.456$, $p < .693$) in comments between statuses ($M = 4.5$), photos ($M = 5$), links ($M = 2$), and videos ($M = 4$).

H5.4: The number of shares will be significantly different for different media richness values.

The Kruskal-Wallis *H* test showed that there was a statistically significant difference ($\chi^2(3) = 8.947$, $p < .030$) in shares between statuses ($M = 0$), photos ($M = 0$), links ($M = 1$), and videos ($M = 0$). The hypotheses results have been summarized in Table 2.

Table 2. Summary of Hypotheses Testing Results

Hypothesis	Independent Variable	Dependent Variable	*p*-value	Test Used
H1.1	Day of the week	Clicks	.671	Mann-Whitney
H1.2	Day of the week	Likes	.399	Mann-Whitney
H1.3	Day of the week	Comments	.700	Mann-Whitney
H1.4	Day of the week	Shares	.137	Mann-Whitney
H2.1	Post Time	Clicks	.778	Mann-Whitney
H2.2	Post Time	Likes	.820	Mann-Whitney
H2.3	Post Time	Comments	.661	Mann-Whitney
H2.4	Post Time	Shares	.063	Mann-Whitney
H3.1	Question Score	Clicks	.429	Mann-Whitney
H3.2	Question Score	Likes	.010**	Mann-Whitney
H3.3	Question Score	Comments	.225	Mann-Whitney
H3.4	Question Score	Shares	.977	Mann-Whitney
H4.1	Word Count	Clicks	.887	Kruskal-Wallis
H4.2	Word Count	Likes	.007**	Kruskal-Wallis
H4.3	Word Count	Comments	.046*	Kruskal-Wallis
H4.4	Word Count	Shares	.313	Kruskal-Wallis
H5.1	Media Richness	Clicks	.001**	Kruskal-Wallis
H5.2	Media Richness	Likes	.003**	Kruskal-Wallis
H5.3	Media Richness	Comments	.693	Kruskal-Wallis
H5.4	Media Richness	Shares	.030*	Kruskal-Wallis

Post Reach Regression

RQ6: How do clicks, likes, comments, and shares contribute to the reach of a social media post?

The regression model, which used the independent variables clicks, likes, comments, and shares to predict post reach was summarized in Table 3. The coefficients and their betas are shown in Table 4.

Table 3. Regression Model Summary[b] for Reach

				Change Statistics				
R	*R* Square	Adj. *R* Square	Std. Error of the Estimate	*R* Square Change	*F* Change	df1	df2	Sig. *F* Change
.819[a]	.671	.667	870.563	.671	157.637	4	309	.000

Notes. a. Predictors: (constant), shares, clicks, likes, comments, b. Dependent variable: post reach

Table 4. Coefficients[a] for Regression Model

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for *B*	
Model	*B*	Std. Error	Beta	*t*	*p*-value	Lower Bound	Upper Bound
(Constant)	424.199	79.417		5.341	.000***	267.933	580.465
Clicks	2.929	.341	.385	8.594	.000***	2.259	3.600
Comments	21.667	8.856	.118	2.447	.015*	4.241	39.093
Likes	6.889	.922	.322	7.472	.000***	5.075	8.703
Shares	55.553	11.345	.188	4.897	.000***	33.230	77.877

A multiple regression analysis was used to test whether clicks, likes, comments, and shares significantly predicted post reach. The results of the regression indicated that

the four predictors explained 66.7% of the variance (Adj. $R^2 = .667$, $F(4, 309) = 157.637$, $p < .001$).

It was found that clicks significantly predicted post reach ($\beta = .385$, $p < .001$), as did likes ($\beta = .118$, $p < .015$), comments ($\beta = .322$, $p < .001$), and shares ($\beta = .188$, $p < .001$).

CHAPTER 6

DISCUSSION

Major Findings

This thesis extracted the two major concepts media richness and message complexity from the original MRT (Daft & Lengel, 1986), providing significant results, especially for the independent variable media richness value. Other variables such as day of the week and post time were intentionally added to challenge commonly accepted beliefs, e.g., the claim that Facebook posts on weekends or in the evening perform better than posts that were published at other times (Ellering, 2016).

Among social media professionals, there is a popular belief that posts that are published on weekends get more social media engagement than posts which are published on weekdays (Ellering, 2016). This belief is often explained with, e.g., the tendency of people to search for different things on the internet on weekends and having more time on the weekend. The results of this thesis may not be generalizable to every social media page in all industries, and scholars should replicate this study to test whether the findings hold true for different samples. Nevertheless, the common misconceptions regarding day of the week and post time were effectively invalidated by showing that the differences in engagement were not significant.

Post Time

The same conclusion was reached for post time as that reached for day of the week. Despite the common assumption that post time may affect Facebook engagement because people tend to behave differently at work than at home, the results in Table 2 clearly show that there is no such relationship. All examined engagement variables were unaffected by post time.

When shares were examined, however, post time differences accounted for a *p*-value of .063, which is approaching significance.

Question Score

The question score is one element (along with word count) which represents the variable message complexity proposed by Daft and Lengel (1986). The independent variable question score only had a significant effect on likes (*p*-value = .01). Posts which did not entail a question performed significantly better than posts with a question (across all post types, with likes being the only significant difference). This finding is somewhat surprising, given that the general social media advice recommends creating engaging posts that activate the audience or incite its interest by posting questions, quizzes, surveys, or contests. Since the results of this thesis cannot be generalized, the claim of interactive posts performing better cannot be dismissed across all industries. For the influencer market in cosplay, however, the results showed that people tended to like a post more if it did not contain a question.

Word Count

Word count, as the second subvariable of message complexity, showed two out of four dependent variables yielding significant results. The different word count groups

resulted in significantly different numbers of likes (p-value = .007) and comments (p-value = .046). Figure 2 shows the variable word count grouped into the three categories which were tested (low, medium, and high) to highlight the tendencies of the data. Posts with low word count resulted in more likes than posts with higher word count. In contrast, the relationship between word count and comments was inversed. Posts with high word counts received more comments than posts with a low word count.

When the cognitive effort required to read a lengthy post is considered, these results appear intuitive. Posts which require low effort to read (low word count) get a low effort engagement reaction (likes). Following this logic, posts which required a high cognitive effort (high word count) received significantly more reactions requiring high cognitive effort (comments). This can partially be explained by the behavioral investment made through reading a longer post and the need to cognitively justify that investment later through commenting, which is behavior that can be explained with the cognitive dissonance theory (Festinger & Carlsmith, 1959).

The results for clicks and shares were inconclusive, yielding no significant differences. For shares, this can potentially be explained by the fact that it is the least occurring engagement metric and therefore did not accumulate enough data to yield significant differences (averages varying from 1.2 shares to 1.9 per post). For clicks, the results show that there was no significant difference in the data set based on word count. Thus, the recommendation for social media marketers is to focus on word count if they want to affect their likes or comments. Special attention should, however, be paid to the counterposing effect of increased word count, increasing comments while decreasing the likes.

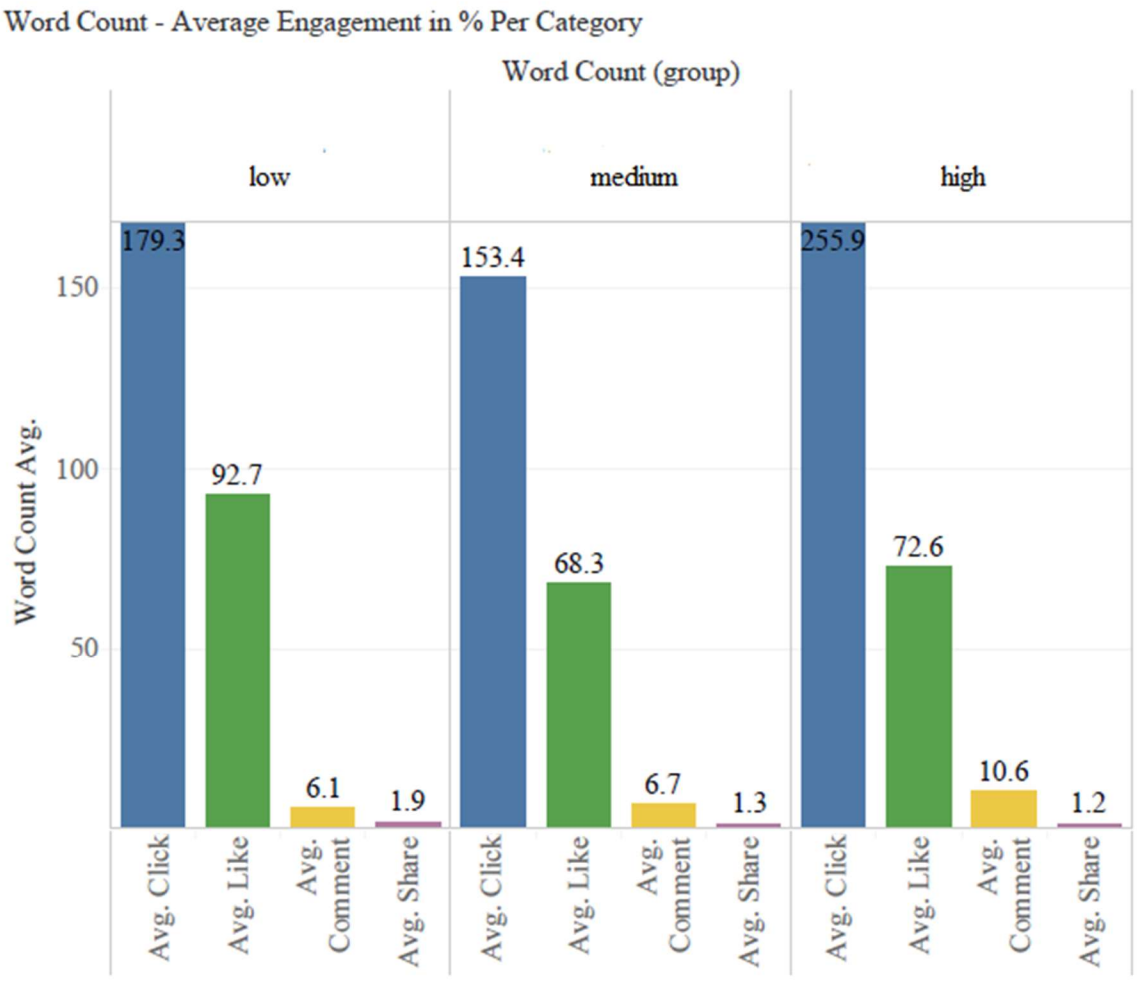

Figure 2. Effects of word count on engagement.

Media Richness Theory

The media richness value was shown to have a significant influence on the number of clicks, likes, and shares. When looking at the significance levels, media richness was by far the most significant across all engagement categories. Thus, it can be concluded that media richness is a more universal predictor than the other variables examined in this thesis. It is applicable to almost all engagement categories, whereas the elements of message complexity should always be assessed in the regarding goal context, e.g., the goal to achieve more likes or comments. The findings are aligned with the most

recent studies in media richness research. As assessed in the literature review, media richness proved to be specifically applicable to social media engagement.

Maximizing Engagement through Media Richness Optimization

Clicks. The relationship between media richness and question score to clicks is displayed in Figure 3. Although differences in engagement were observed, i.e., posts with no questions are favored, these differences were not significant for clicks.

Furthermore, a continuous rise in clicks was observed for increasing media richness values. The media richness value of 1 represents text posts (which had the least number of clicks and do not contain elements such as, e.g., a video, which would provoke clicks). Photos yielded the second highest number of clicks, proving to be more engaging to incite clicks than text posts. Links, which had the third highest number of clicks, forwarded users to external websites once they clicked on the posts. Hence, there was a reason and a benefit for the audience to click on such posts. Even more appealing to users evidently was to click on videos, which had a media richness value of 4 and the highest number of clicks.

Likes. The relationship between the media richness value and the question score to likes is visualized in Figure 4. It should be noted that all posts with no questions performed on average better than posts with questions, across all levels of media richness. Status posts yielded the lowest number of likes, followed by video posts. Almost the same number of likes was achieved through photo posts and link posts, although photo posts were slightly more liked.

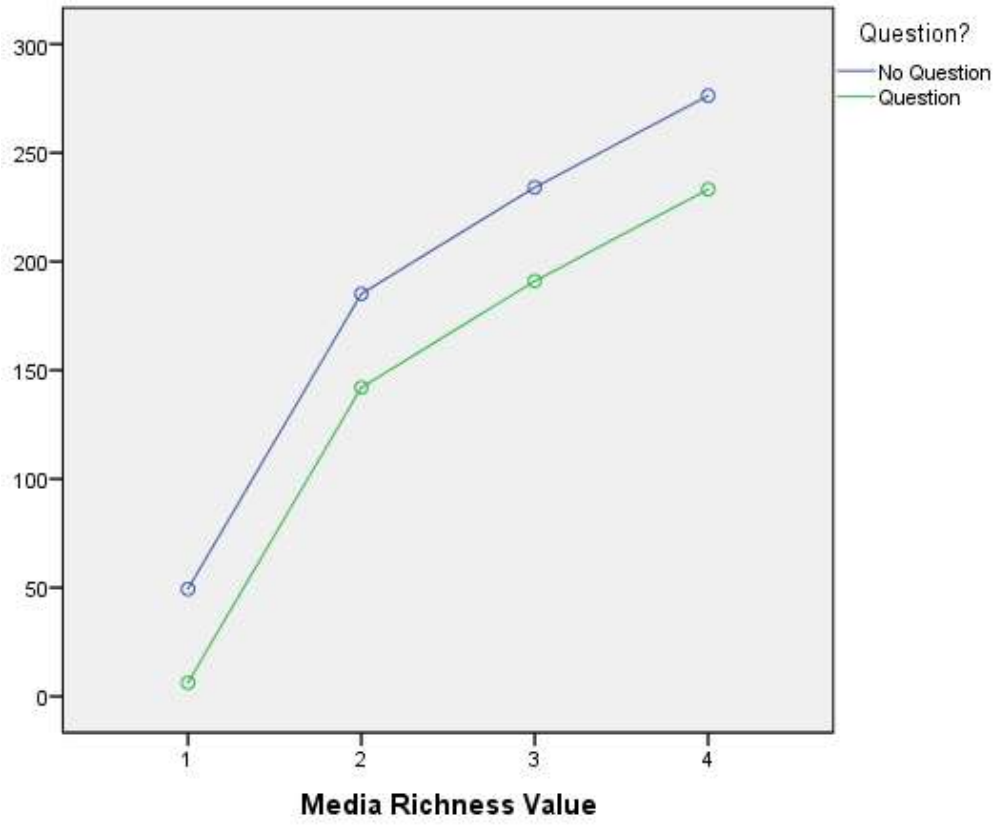

Figure 3. Media richness value and question score by clicks.

This result is logical. To like something, individuals must know whether they are in favor of a post. With an image or a link containing a catchy headline, it is easy to identify one's preferences. With long status posts that include, e.g., multiple long sentences, however, we must make a conscious effort to decide to read and understand what has been posted. The same concept applies to videos. If we want to decide whether we like a video, we should at least look at parts of the video. That means that we must commit to clicking on the video to start playing and watching it. Not only does that require a lower order form of engagement (clicks) as a prerequisite, it also demands time and cognitive effort to commit to the video. The lower number of likes in status and

video posts could hence be a result of fewer people committing to the extra effort required to judge whether they like a post or not.

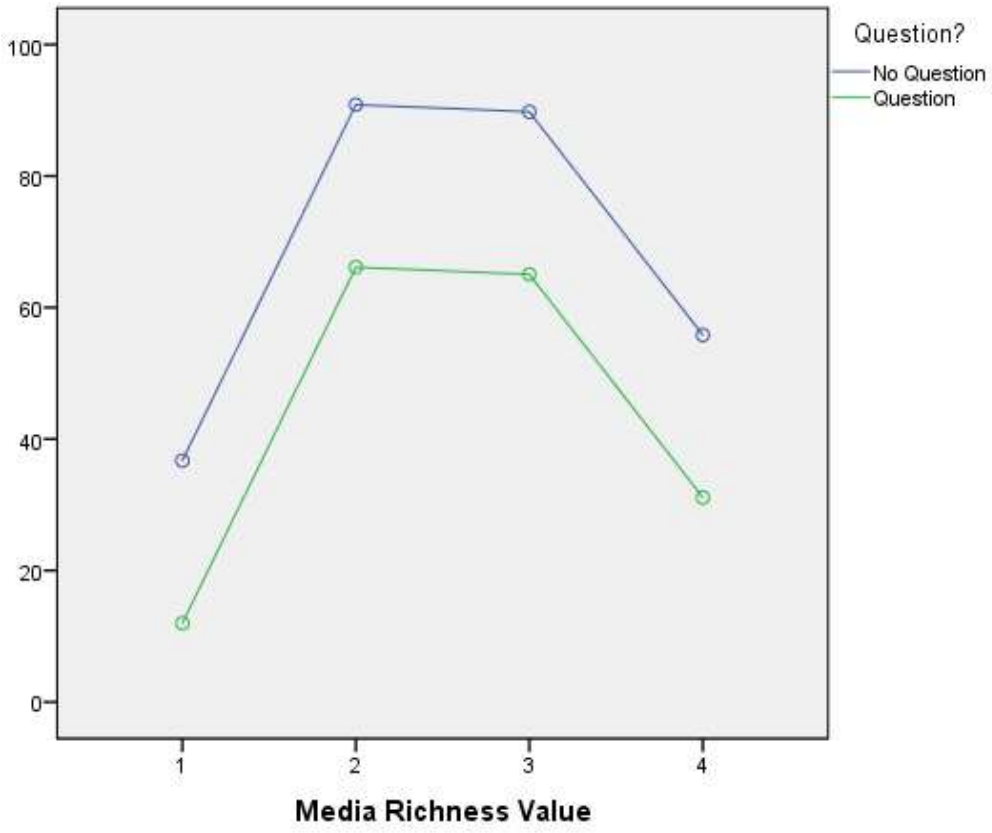

Figure 4. Media richness value and question score by likes.

Comments. Although differences in engagement have been observed for questions versus no questions, which favored no question posts, these results were not significant for comments (Figure 5). Even though the number of comments was highest for link posts, followed by photo posts, video posts, and status posts, these differences were not significant for comments.

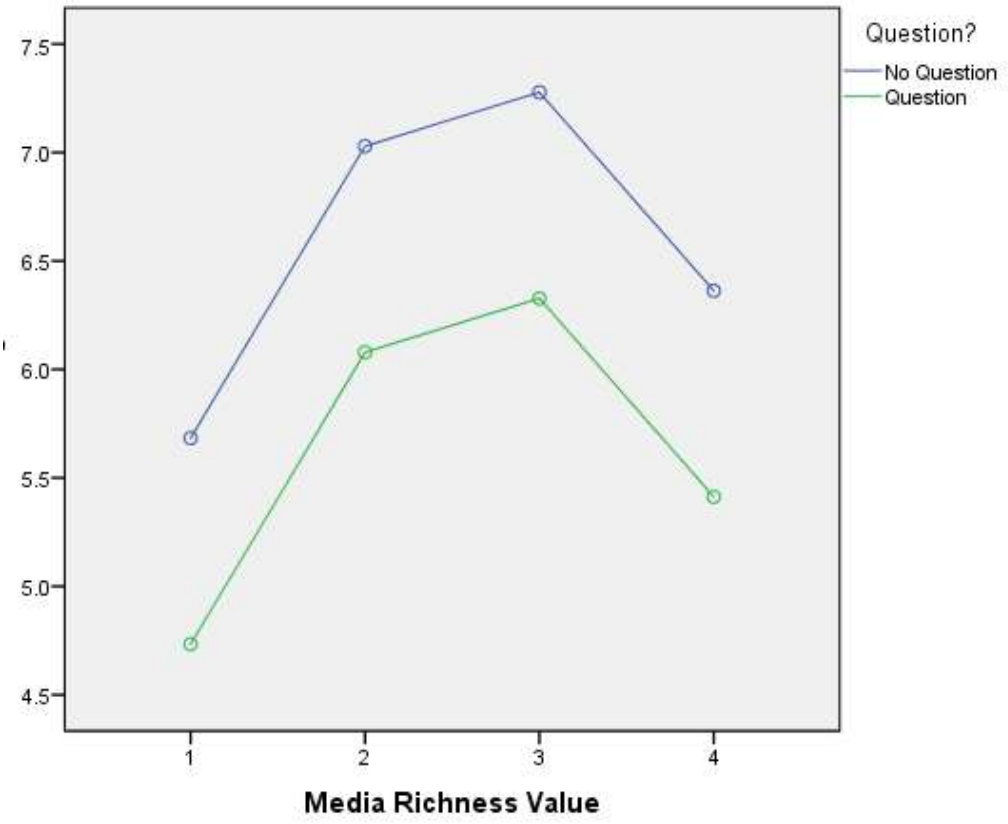

Figure 5. Media richness value and question score by comments.

Shares. Although differences in engagement have been observed for questions versus no questions, with no question posts being preferred, these results were not significant for shares (Figure 6).

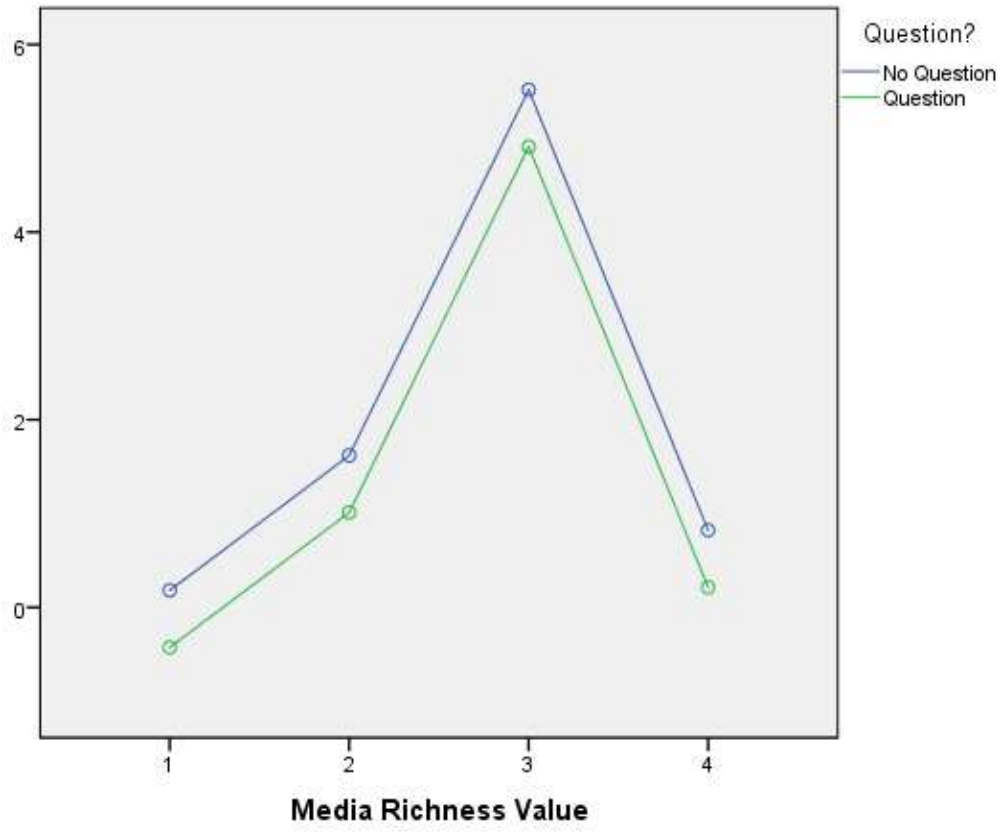

Figure 6. Media richness value and question score by shares.

The audience was most likely to share a post when they saw that it contained a link. In contrast to the other engagement categories, which seemed to favor link and photo posts almost at the same level, the preference of link posts was very distinct. With significantly fewer shares, the photo posts ranked second for achieving shares, followed by video posts, and lastly status posts.

The implications are rational. When people decide to share something with their friends or family on Facebook, they are willing to do so when they anticipate adding value to the lives of the people that will see their shared post. If the post is a text post, it can only contain a limited amount of information. A photo may be beautiful, funny, or informative but the degree of insight or new information is still limited. When people

share a link to an external website, however, this website is most likely going to contain multiple elements of text, images, links (additional third-party websites), and videos. Therefore, in most cases, a link post is most likely going to deliver the richest information and a variety of insight and value to people. Yet, link posts denote with a media richness value of 3 because they are evaluated as they appear on the Facebook Timeline (website preview thumbnail, headline, and description) since only a fraction of the audience clicks through to the link. Nevertheless, when a link is shared on Facebook, it is motivated by the anticipation that friends or family will click on the link because we personally recommended it. Hence, the content of the website referred to is taken into consideration when individuals decide to share a post, which explains the higher shares for link posts.

Regression

The results of the regression analysis on post reach were highly significant across all categories (clicks [$\beta = .385$, $p < .001$], likes [$\beta = .118$, $p < .015$], comments [$\beta = .322$, $p < .001$], and shares [$\beta = .188$, $p < .001$]). The fact that the adj. R^2 showed that 66.7% of all the variance of post reach can be explained by the four predictors clicks, likes, comments, and shares reemphasizes the importance for brands to start optimizing for reach, which is easier to operationalize than, e.g., purchasing intention. From the beta values, it can be derived that all engagement metrics positively increased reach. Clicks and comments contributed the most to increases in post reach, and likes and shares contributed the least to post reach.

The results of the regression are, besides other influencers of reach, a reflection of the Facebook algorithm and how it values each engagement action to increase post

reach. Coursaris et al. (2016) used the following formula to express social media engagement "Weighted engagement = 0.5 x ∑(L) + 1 x ∑ (C) + 1.5 x ∑(S)" (p. 15). The engagement in their formula is calculated by assigning assumed cognitive effort weights for the execution of a given engagement action. Hence, comments in their model were valued twice as high as likes, and shares were valued three times as much as likes. This is because shares seem to require the most commitment and involvement. It can be argued that an approach that investigates how each subcomponent contributes to the achievement of the overall goal post reach is much more valuable than a derivation from cognitive effort required to perform such engagement. Deducted from the regression model on post reach, the following goal-oriented social media engagement formula is proposed:

$$Post\ Reach = .385\ x \sum_{Clicks} + .118\ x \sum_{Likes} + .322\ x \sum_{Comments} + .188\ x \sum_{Shares}.$$

Applying this formula, practitioners can tailor their posts so that they maximize their post reach and therefore their brand awareness. Knowing that clicks and comments are the most important to increase post reach, for example, practitioners should ensure that posted photos or links are enticing and curiosity evoking enough to trigger a click or comment. Based on the findings in the hypotheses, guidelines on how to achieve the most clicks and comments can be constructed. A second conclusion of this thesis is that in order to achieve a greater social media reach, it matters less whether people like or dislike a post. Rather, it is more important that a post is engaging, clicked, and commented on to achieve the highest post reach.

Limitations and Further Research

Even though the study found significant results, there are always limitations which need to be considered when assessing the findings. First, it should be noted that this thesis was based solely on a single Facebook page of a very specific niche market (cosplaying). The fact that the whole sample was taken from one Facebook page limits the representativeness of the results across different industries. Even within the cosplaying sector, one Facebook page alone is not representative of the whole market. With an alternative study design, which would analyze the data of different cosplayer Facebook pages, the results could show different tendencies, which would allow statements to be made for Facebook pages in the market of cosplaying. The vast amount of data could remove the significance of outliers and give a more balanced picture of the cosplaying audience and its preferences.

However, the MRT is a general theory which was intended to be applicable to every person regardless of their identification with a certain group. Regarding the MRT specifically, there is hence no mentioning in the literature that would lead to the belief that significant differences are to be anticipated for different applications or industries.

Conclusion

The special approach in this thesis was to research and contrast two categories of engagement influencers: commonly assumed but less scientifically tested variables (day of the week and post time [Ellering, 2016]), and theoretically derived variables, which were already more extensively tested (media richness, word count, and question score [Daft & Lengel, 1986]). Additionally, the lack of a compound formula for social media engagement was identified and resolved by performing a linear regression with real-world data.

The popularly assumed influencers, post time and day of the week, showed no significant results. In contrast, the variables derived from the media richness theory showed significant results. The likes were shown to be significantly different for posts that entailed questions. Moreover, there were significant differences in likes and comments for posts with different word counts. Lastly, clicks, likes, and shares were significantly different depending on the media richness value (status, photo, link, or video). Therefore, the testing of these two categories of variables contributed to the debunking of popular social media myths, as the previous studies regarding media richness were for the most part confirmed and assumptions regarding post time and day of the week were dismissed. The thesis confirmed the robustness of the MRT. The fact that this study yielded significant results for the tested variables derived from the MRT and no significant results for effects that are commonly assumed by social media practitioners (Ellering, 2016) further reemphasizes the necessity of scientific inquiry to test hypotheses. One very prominent non-scientific article claimed higher engagement on, e.g., weekends (Ellering, 2016). But these claims were not confirmed using the scientific method. Since this thesis tested these relationships and reported insignificant results for post time and day of the week, it should encourage other scholars to replicate this study and apply it to different industries to see whether the results hold true.

As a second contribution, the newly created social media engagement formula should be discussed. Such a formula based on performance data has never been published before. Rather, the only attempt of formulating a compound social media engagement formula was based on an arbitrary assignment of subjective weights based on cognitive involvement to perform such engagement actions (Coursaris et al., 2016).

In summary, the results of the thesis did not only debunk commonly accepted social media myths about post time and day of the week, they also confirmed previous studies claiming media richness and its components to have significant effects. Furthermore, they equipped social media practitioners with a social media formula which is backed up by real world data, effectively helping them to tailor posts by optimizing the composition of their target variables clicks, likes, comments, and shares so that post reach, brand awareness, and hence potential engagement is maximized.

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