

Georgia State University
ScholarWorks @ Georgia State University

Business Administration Dissertations

Programs in Business Administration

Spring 4-29-2019

Real-Time Push Mobile Marketing Strategy: To What Extent Do Time and Relevance Matter?

Alvin Glay

Follow this and additional works at: https://scholarworks.gsu.edu/bus_admin_diss

Recommended Citation

Glay, Alvin, "Real-Time Push Mobile Marketing Strategy: To What Extent Do Time and Relevance Matter?." Dissertation, Georgia State University, 2019.

https://scholarworks.gsu.edu/bus_admin_diss/114

This Dissertation is brought to you for free and open access by the Programs in Business Administration at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Business Administration Dissertations by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.

PERMISSION TO BORROW

In presenting this dissertation as a partial fulfillment of the requirements for an advanced degree from Georgia State University, I agree that the Library of the University shall make it available for inspection and circulation in accordance with its regulations governing materials of this type. I agree that permission to quote from, copy from, or publish this dissertation may be granted by the author or, in her absence, the professor under whose direction it was written or, in his absence, by the Dean of the Robinson College of Business. Such quoting, copying, or publishing must be solely for scholarly purposes and must not involve potential financial gain. It is understood that any copying from or publication of this dissertation that involves potential gain will not be allowed without written permission of the author.

Alvin Nyah Glay

NOTICE TO BORROWERS

All dissertations deposited in the Georgia State University Library must be used only in accordance with the stipulations prescribed by the author in the preceding statement.

The author of this dissertation is:

Alvin Nyah Glay

J. Mack Robinson College of Business

Georgia State University^[1]_[SEP]

Atlanta, GA 30302-4015

The director of this dissertation is:

Denish Shah

J. Mack Robinson College of Business

Georgia State University^[1]_[SEP]

Atlanta, GA 30302-4015

Real-Time Push Mobile Marketing Strategy: To What Extent Do Time and Relevance Matter?

by

Alvin Nyah Glay

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Executive Doctorate in Business

In the Robinson College of Business

Of

Georgia State University

GEORGIA STATE UNIVERSITY

ROBINSON COLLEGE OF BUSINESS

2019

Copyright by
Alvin Nyah Glay
2019

ACCEPTANCE

This dissertation was prepared under the direction of the *ALVIN NYAH GLAY* Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Business Administration in the J. Mack Robinson College of Business of Georgia State University.

Richard Phillips, Dean

DISSERTATION COMMITTEE

Dr. Denish Shah (Chair)

Dr. Naveen Donthu

Dr. Veda C. Storey

DEDICATION

We have all heard the maxim that nothing good in life comes easily. My journey to earn this degree supports this statement. I became a refugee at the age of 7, when I had to flee my home with my family. For 7 years, my family and I lived in exile, where every day was a matter of life and death. During this period, I had no chance to obtain a formal education because staying alive was a priority. Many days, we did not eat, and we had no clothes or shoes; we would often walk for weeks at a time, in search of a better home. This led us to the Ivory Coast, where my family and I lived in exile for 5 years. In 1997, we were granted a resettlement visa to come to the United States, and thus began the pivotal moment in my life. Migrating to the U.S., did not significantly change my circumstances; we were still poor and required assistance for food, clothes, and everyday essentials. However, for the first time, I had access to a real education.

This experience taught me three simple lessons. The first is perseverance is critical—your past doesn't define your future. You must remain positive and stay committed. It is much easier to give up when circumstances are not in your favor; however, positive thinking and commitment can make the impossible possible. Second, willingness to be uncomfortable is essential to success. Being uncomfortable drives creativity and openness to learning. When you are uncomfortable, you often doubt yourself, which makes it much easier to give up. However, people often don't know how strong they are. Truly, when you are committed to a cause, no obstacle is too significant to overcome. It is valuable to remember that when you are in an uncomfortable situation. Finally, the people you choose to associate with influence who you become. Surround yourself with people who share your aspirations or are doing the things you

would like to pursue. Being around people who are smarter and more driven encourages you to keep progressing, even when things are not going well.

The purpose of my story is not to demonstrate my resilient However, I share my story here, because I know there that many others like me, facing similar or worse situations. I share my story to let them know that there is hope and that they have more control of it. The impossible can be possible, but one must work hard, remain positive and stay committed. I dedicate this dissertation to all of them and I want them to know that they are the stewards of their destiny. Keep pushing and do not give up.

ACKNOWLEDGEMENTS

Where shall I begin? Many individuals were influential throughout this journey. My name is listed as the author of this dissertation; however, it would be selfish of me not to acknowledge everyone who has supported me on this journey. To begin, I would like to extend my gratitude to my data access partner and all the stakeholders at the firm for allowing me to execute this research.

Second I would like to thank all the faculty and staff members at Georgia State Robinson College of Business for their continued guidance and support. There was not a single moment during the program when I needed advice that I felt unsupported. They provided me with the foundation and confidence to progress. Specifically, I would like to thank Shalini Gopalakrishnan for all of her support. Shalini was always available and responsive whenever I needed her.

Next, I would like to acknowledge my committee members for their counsel and support. Specifically, I would like to recognize my academic advisor, Dr. Denish Shah. From the moment we met, I realized that he would have a profound impact on my journey and beyond. He was available whenever and wherever I needed him. Dr. Shah is truly a selfless and fantastic mentor, and I am grateful to have met him. Without his support, completing this program would not be possible. I am forever thankful.

Next, I would like to thank my cohort, specifically: Esther Chance, Irina Kogan, Yves Belmont, and Jennoa Graham. We were total strangers when we met on the first day of this program but are now family for life. We supported each other, and, without their support, the timely and successful completion of this program would have been impossible. All the nights, weekends and text conversations pulled me through, and I am genuinely grateful to have met

them. Strangely enough, as much as I am not going to miss the long nights and weekends, I will truly miss seeing them every month.

Next, I would like to thank my wife, Liduvina Glay, and my two children, Camila and Jayce Glay. They sacrificed everything to allow me to achieve my dreams. Often, we do not realize the impact a program as such has on our loved ones. The countless hours of missed weekend activities and time away from my family was hard, but they were supportive. Words alone cannot express how grateful I am for a supportive wife and children.

Finally, I wanted to save the last acknowledgment for the most influential person in my life, my mother, Betty Johnson. She sacrificed everything, including her happiness, for my siblings and me. All I have ever wanted to do is make her proud and let her know that her sacrifices were not wasted. This degree is not just for me, but for the both of us. You are my honorary Dr. Thank you for loving me and instilling in me faith that the impossible is possible, with hard work and positivity.

Thank you,

Alvin N. Glay

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
I CHAPTER 1: INTRODUCTION	1
I.1 Research Motivation.....	1
I.2 Smartphone Penetration	2
I.3 Consumer Adoption.....	4
I.4 Advertising Trends	6
I.5 Summary.....	7
II CHAPTER 2: LITERATURE REVIEW AND THEORY	11
II.1 Literature Review	11
II.2 Thematic Categorizations Process.....	12
II.3 Publication Trends.....	13
II.4 Mobile Promotion, Marketing, and Advertising.....	17
II.5 Mobile Marketing Research Characteristics.....	19
II.6 Trends in Mobile Marketing.....	21
II.7 Considering the Contextual Factors.....	23
II.8 Interactive Effectiveness in Mobile Marketing	24
II.9 Permission Marketing	25
<i>II.9.1 Mobile-Permission Marketing.....</i>	<i>27</i>
II.10 Proximity	28
<i>II.10.1 Real-Time Mobile Marketing</i>	<i>29</i>
II.11 Topicality.....	30

II.11.1	<i>Customer Experience</i>	33
II.12	Utility	34
II.13	Theoretical Framework	35
II.14	Conceptual Model Specification	36
II.15	Push Mobile Communication.....	37
II.16	Messaging Timing	38
II.17	Message Relevance	38
II.18	Consumer Engagement Rate.....	39
II.19	Hypotheses	40
III	CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY	42
III.1	Research Design	42
III.2	Data Collection Method.....	43
III.2.1	<i>Research Data Management</i>	44
III.3	Sample Selection.....	45
III.4	Control Variable	46
IV	CHAPTER 4: DATA ANALYSIS AND RESULTS	48
V	CHAPTER 5: DISCUSSION	58
VI	CHAPTER 6: RESEARCH LIMITATIONS AND FUTURE IMPLICATIONS	63
VI.1	Research Limitations	63
VI.2	Future Research Implications.....	64
VII	CHAPTER 7: CONCLUSION	65
	REFERENCES	66
	VITA	78

LIST OF TABLES

Table 1: Themes Definition	13
Table 2: Frequency of Papers Published by Journals	14
Table 3: Distribution of Topic Focus by Year	16
Table 4: Research Design	42
Table 5: Data Collected	44

LIST OF FIGURES

Figure 1: Number of Publications by Year.....	15
Figure 2: Research Categorization.....	16
Figure 3: Ephemeral Push Mobile Communication.....	36
Figure 4: Descriptive Statistics: Time Spent on the Doctor Finder Page (Seconds).....	48
Figure 5: Descriptive Statistics: Total Time on Site (Seconds).....	49
Figure 6: Descriptive Statistics: Total Contacts.....	49
Figure 7: Time Spent on Doctor Finders T-test results: NRT/RC vs. NRT/NRC	50
Figure 8: Time Spent on Dr. Finder T-test results: NRT/RC vs. Control.....	51
Figure 9: Total Contacts T-test Results: NRT/RC vs. NRT/NRC.....	51
Figure 10: Time Spent on Dr. Finder T-test results: RT/RC vs. NRT/NRC	53
Figure 11: Time spent on Dr. Finder T-test results: RT/RC vs. Control	53
Figure 12: Total contact T-test Results: RT/RC vs. NRT/RC	54
Figure 13: Time spent on Dr. Finder T-test Results: RT/RC vs. NRT/RC	55
Figure 14: Total Time spent on Site T-test Results: RT/RC vs. NRT/RC.....	55
Figure 15: Total Contacts T-test Results: RT/RC vs. NRT/RC	56
Figure 16: Time spent on Dr. Finder T-test Results: RT/RC vs. NRT/RC	57
Figure 17: Total time on site T-test Result: RT/RC vs. NRT/RC.....	57
Figure 18: Total Contacts T-test results: RT/RC vs. NRT/RC.....	57

ABSTRACT

Real-Time Push Mobile Marketing Strategy: To What Extent Do Time and Relevance Matter?

by

Alvin Nyah Glay

May 2019

Chair: Denish Shah

Major Academic Unit: Executive Doctorate in Business

The ubiquity of the smartphone has proven disruptive. The relevance of this medium can be observed through time spent on mobile media, google mobile search numbers, and direct and indirect sales generated by mobile devices. Consumer expectations of firms have likewise increased, and there is now an anticipation of readily reliable, responsive, and personalized services to support consumers' everyday activities whenever they need it. Prior research focused on the following themes: mobile marketing strategy, permission marketing, proximity marketing, topicality, and utility. Empirical gaps were identified in the real-time mobile and push mobile marketing domain. A quantitative engaged scholarship research method was utilized to empirically investigate this phenomenon. In partnership with an online information marketplace, an empirical investigation was undertaken via an experiment that used real mobile application users. The empirical findings from the study have several possible implications. First, prior research suggests that mobile marketing is time-sensitive, but consumers require some lead time to respond to the communication. However, this study provides evidence that push mobile communication is different. Unlike traditional mobile marketing, real-time communication and content topicality work together to increase consumer engagement in push mobile communication. Second, mobile application users would like a guided experience that is both

relevant and in real-time. Failing to engage users with any communication or provide a guided experience on the mobile application is as counterproductive as sending users a push communication that is neither relevant nor in real-time. Third, in certain business contexts, topicality takes priority over the timing of the communication. When the business context is ephemeral in nature, timing and topicality are of equal importance. The study contributes to the research by plugging the real-time and push mobile communication literature gap. The study contributes to practice by providing a push mobile marketing framework for firms seeking to orchestrate a sound push mobile communication strategy. Finally, the study acts as a catalyst to a call for research on the scarcely explored areas of real-time and push mobile marketing to move the field forward.

INDEX WORDS: push mobile marketing, real-time mobile marketing, mobile marketing

I CHAPTER 1: INTRODUCTION

I.1 Research Motivation

The global adoption of mobile commerce, marketing, and advertising in the marketplace requires in-depth knowledge of all the areas relating to consumer behavior. Both academic and industry research has yet to thoroughly explore the impact of mobile marketing techniques and strategies. Hence, a comprehensive review of the mobile marketing literature, from 2000 to 2018, was conducted; the time frame was determined by the evolution of Apple's iPhone, the archetype for today's smartphones. The literature review focused on the mobile advertising literature, with the objective of understanding current research in the mobile marketing domain. The investigation covered an overview of market opportunities, marketing applications like the traditional short message service (SMS), the contextual relevance of advertisements, mobile advertising displays, and consumer behavior. There was a focus on the related academic journals, practitioner journals, and industry research, narrowing down these fields to mobile marketing strategy and application, thereby yielding an identifiable gap in push mobile marketing studies. Based on a survey of the mobile marketing literature from this time frame, gaps existed in the real-time and push mobile marketing literature. Push mobile marketing represents approximately 25% of firms' marketing programs (Rowe, 2017). Push mobile notification is an area where few studies have been conducted, which presents an opportunity to contribute to push mobile marketing literature in a way that may be useful to practitioners. Push mobile's ephemeral nature demands further, yet up-to-date, research among marketing specialists. The lack of adequate documentation can adversely impact industry players who provide retail services, halting them from leveraging themselves as an industry force on mobile marketing platforms. As such, the

identification of issues within mobile advertising is paramount to effecting change within the industry.

This objective of this research is to address this gap. The investigation explored the extent to which timing and topicality impact the consumer engagement rate in push mobile marketing. The phenomenon was explored empirically, through a quantitative engaged scholarship method (Mathiassen & Nielsen, 2008; Van de Ven, 2007). In partnership with an online information portal, data were collected using real mobile users on the firm's mobile application. The research question explore is the following: To what extent does real-time context and content topicality through push mobile communication impact customer engagement rate?

The investigation was undertaken through the lens of the theory of being present (Kivetz & He, 2017). The theory of being present posits that consumers are more engaged when communication is transient in nature. Ephemeral messages foster greater interpersonal closeness by causing consumers to ruminate less and engage more or be in the moment. By being in the moment, people are more inclined to be open and creative. Push mobile marketing is a form of ephemeral messaging, and as such, it is appropriate to investigate this research stream by utilizing the theory of being present.

1.2 Smartphone Penetration

The emergence of Apple's iPhone, which launched in 2007, precipitated mobile web use at a magnitude that is yet to be fully understood. The iPhone combines three products—a revolutionary mobile phone, a widescreen iPod® with touch controls, and a groundbreaking Internet communication device with desktop-class e-mail, web browser, and maps—into one small and lightweight handheld device (Kerris & Dowling, 2007). Despite its innovative

qualities, the iPhone did not become mainstream immediately. The iPhone, however, positioned itself among other technological advancements as a mobile contender and was a catalyst for the demand and subsequent supply of “smartphones,” as we know them today. Manufacturers such as Samsung, HTC, and Alcatel, among others, began to adopt this new technology, increasing the penetration of smartphones in the mainstream market. The ubiquity of smartphone innovation has provided firms with unprecedented access to consumers without the restrictions of time and space (Smutkupt, Krairit, & Esichaikul, 2010). Prior to mobile innovation, firms were restricted by the space and time in which they could reach their target consumers.

The Internet of Things (IoT) is another phenomenon that has further accelerated the utility of consumers’ content consumption. Here, IoT is defined as the shift from an Internet used for interconnecting end-user devices to an Internet used for interconnecting physical objects, such as everyday devices like cars (Miorandi, Sicari, De Pellegrini, & Chlamtac, 2012). These everyday items include things like refrigerators, clothing, and many other items. By 2020, there are expected to be 50 billion connected devices, which is more than seven times the world’s population (Gao & Bai, 2014; Swan, 2012). The mobile phone will serve as a communication hub for the interaction of consumers and their connected devices. The high level of the mobile penetration has resulted in heightened consumer expectation for real-time information. The need for immediacy has resulted in consumers’ expectations increasing mobile dependence.

Consumers’ mobile activities no include activities once performed on outpaced desktop computers, with more than 51% of browsing activities currently occurring on mobile versus 48% on desktops (Gibbs, 2016). The increase in mobile device penetration has rendered information more accessible, and at a faster rate. Consumers expect firms to be responsive and to provide personalized services to support their everyday activities, whenever they need these services

(Miorandi et al., 2012). Consumers generally respond positively to firms that use personalized content (Wu, Chen, & Dou, 2016). Mort et al. (2002) coined this phenomenon the “roam and receive” environment; indeed, the heightened demand for personalized experience is referred to as Uber-commerce (Richard T. Watson, 2002). Consequently, consumer loyalty to a given firm or product has been declining, because of an increase in online options at the customer’s disposal (Bardhi & Eckhardt, 2017). It is much easier to find a substitute for a product, using a single Google search on a mobile phone. Any friction within this interaction between a given firm and consumer culminates in the risk of that firm losing the consumer to a competitor. Consumers like this are referred to as *liquid consumers* (Bardhi & Eckhardt, 2017). Liquid consumers are ephemeral, through mobility, flexibility, and experience, as required to navigate an online marketplace. The need for companies to interact in real time with relevant information without any friction with their consumers is crucial.

I.3 Consumer Adoption

Mobile technological advancements have revolutionized the interaction between firms and consumers. Smartphones are increasingly becoming the primary medium of a consumer’s content consumption, and this has been changing the way people shop. A consideration of this changing trend of how people shop reveals that more than 3 billion people, globally, own a smartphone device; this rate is expected to increase by 90% by 2020 (Rohm, 2012). Consumers use their devices as the starting point of their shopping journey, sometimes even while they are in a retailer’s physical location (Fulgoni, 2014). As such, offline and retail shopping behaviors are significantly affected by mobile phone usage. The ability of consumers to easily and quickly navigate the world of retail has proven to be widely beneficial, in terms of a firm’s use of time, energy, and money in acquiring goods and services (Rohm, 2012). This phenomenon has

resulted in a constant consumer connection, leading some people to become addicted to their mobile phones.

A recent study by the Physiological Society revealed that the idea of losing a smartphone is more closely associated with stress and a terror attack with fear (Knapton, 2017). The average consumer's attention span is less than eight seconds (Faro & Grimes, 2018). The number of connected devices per person has increased exponentially from 3.45 in 2015 and to an estimated 6.5 in 2020.¹ Individuals now have access to more screens than before; as such, more than half of consumers today are, on average, engaged in cross-screen activities and 70% are engaged with a second device while watching TV (Marvin, 2013). As a result, people are less focused on traditional business practices, products, and services, which makes them more reliant on their mobile devices than before, so much so that the average person picks up his or her phone over 100 times a day, spending 26% of his or her time staring at the home screen because of the fear of missing out (Clor-Proell, Guggenmos, & Rennekamp, 2018). Research from Pew states that 67% of mobile phone users check their phones for messages, alerts, or missed phone calls even when the phone is turned off or not ringing, and 44% of users sleep with their mobile phones next to their beds (Smith, 2012). People engaging in an ad-free environment continue to rise with the increase of ad-blocking technology, going from 15.7% in 2014 to 27.5% in 2015 (Statista, 2019), which many see as making mobile use a more pleasant experience. Consumer adoption involves the how (pattern/s), why (reason/s), what (influence/s), where (proximity), and when (timing) questions associated with the way customers are most likely to engage. A study conducted on the cross-market acceptance of mobile marketing found that in the three most influential regions, the United States, China, and Europe, customers perceived usefulness,

¹ <https://www.statista.com/statistics/678739/forecast-on-connected-devices-per-person/>

consumer innovativeness, and personal attachment as directly influencing attitudes toward mobile marketing (Rohm, 2012). In modern, multifaceted, and omnichannel environments, consumers are bombarded with information about goods and services (Grewal, Roggeveen, & Nordfält, 2017). Nonetheless, Rohm et al.'s (2012) study emphasized the importance of a customer-centered approach in mobile marketing, which is the hallmark of any successful advertising strategy. The emotional attachment people have to their mobile devices plays a role in the user perceptions of mobile advertising and receptiveness (Kolsaker & Drakatos, 2009).

I.4 Advertising Trends

The combination of mobile web access and online retail has also spurred the growth of many technology companies, such as Uber, Airbnb, Netflix, and Facebook. For example, Facebook, the largest social media network in the world, generated \$55 billion revenue in 2018, compared with the \$7.8 billion it generated in 2013. Facebook is ranked fourth, in terms of market cap, on the S&P 500 and has over 2.1 billion users on its platforms (Facebook, 2018; Yahoo, 2019). A significant amount of Facebook's social media activity, over 95%, is through smartphones (Facebook, 2018). Also, nearly 60% of all Google searches are done via mobile devices (Sterling, 2016). Because of the increased utilization of consumer content consumption and time spent on mobile devices, firms are spending billions of dollars on mobile advertising. The average person is exposed to over 11,000 ads in any given month (Elliott, 2017), trying to divert consumers' attention to ads but not directly engaging consumers with these ads. Subsequently, firms are exploring other options that are scalable, cost-efficient, and less intrusive to trigger customer engagement

Currently, businesses have capitalized on all online marketing avenues to boost their consumer reach and increase their profits. The use of various mobile marketing techniques

optimizes the visibility and reach that these companies have with customers and does so in real time; however, real-time mobile marketing must be anchored to right-time interactions. Both real-time and right-time customer interactions ensure the relevance of all communication between firms and customers. Companies have further recognized the shift in content consumption proficiency, primarily in advertising, which has led to an increase in revenue being invested in mobile marketing. In 2017, mobile advertising accounted for 69.9% of the total U.S. digital advertising expenditure. Mobile advertising expenditures are expected to surpass \$65 billion by 2019 in the United States alone (Grewal, Bart, Spann, & Zubcsek, 2016). According to eMarketer, mobile advertising is projected to surpass TV as the leading advertising medium, with a projected growth rate of 47.9%, by the year 2022 (Grewal et al., 2016). In the Asian Pacific region and in China, 50% of total online transactions are conducted through mobile devices.² Globally, the total mobile share of online commerce is expected to double, reaching three-quarters by 2021.³ Given the rapid increase in mobile device penetration, alongside the continuous advancement of services provided via mobile technology, it is essential that the literature accurately reflects the time, space, and audiences. It is imperative that firms be grounded in the right moment and context to capture the attention of mobile users.

I.5 Summary

This research paper is organized as follows:

Chapter 1: Introduction: This chapter presents the magnitude of smartphone technology's impact on both consumers and businesses. It begins with a brief history of the emergence of Apple's iPhone, the archetype of the modern smartphone, which creates the trajectory of the paper. In

² Global M-Commerce 2018-2021 - M-Commerce Accounts for Over Half of Global Online Retail - ResearchAndMarkets.com," 2018

³ Global M-Commerce 2018-2021 - M-Commerce Accounts for Over Half of Global Online Retail - ResearchAndMarkets.com," 2018

addition, there is a discussion of the importance of smartphone ubiquity and how it influences the interaction between firms and consumers. The research gap in the real-time mobile and push mobile marketing domain receives consideration. The chapter then concludes with the research question and hypothesis explored, due to the literature gap.

Chapter 2: Literature Review: The literature review focuses on the mobile marketing literature, as well as specific areas, namely: permission marketing, proximity marketing, topicality, and utility, as well as the impact of each on mobile advertising aimed at promoting goods and services. The discussion concentrates on scholarly research produced between 2000 and 2018 and material produced within the business arena. The chapter also focuses on those journals with accessible articles on mobile marketing. There are analytical tables, denoting each journal and the number of articles found within each journal used in the review. The literature review aims to understand the existing literature landscape on mobile marketing, as well as the literature on push mobile marketing to identify the gaps within the literature collection.

Chapter 3: Research Design and Methodology: This chapter outlines the methodological approach and theoretical framework that guided the study. This section provides justification for the use of a quantitative experimental engaged scholarship method that tests a total of five groups, including a control group. All participants were randomly selected, and the criteria for participation required first-time users of an online aesthetic marketplace application downloaded on their Apple iPhones. The data collected and measured are as follows: mobile ID, content preference, user location, user status, time in application, pages/screens views, time spent on page/screen, and contact request. The theoretical framework used is called being in the moment, which speaks to the transient nature of push notifications. The objective is to understand the

impact of a real-time push mobile marketing strategy and the extent to which time and relevance impact the customer engagement rate.

Chapter 4: Data Analysis and Results: This chapter provides insight into the data analysis process and results. A variance ephemeral push mobile communication conceptual model was developed. The outcome of the model is to predict the extent of the impact of timing and topicality on the consumer engagement rate in push mobile communication. The statistical tools used for analysis were IBM SPSS for quantitative research and Microsoft Excel for the compilation of the literature that also aided in the literature synthesis. The conceptual model and hypotheses were tested against a sample of 11,828 real mobile users.

The results reveal that an ephemeral push mobile communication grounded in real-time communication and that possesses information relevant to consumers has an impact on consumer engagement. Also, the results empirically showed that no communication to users on a mobile application is as ineffective as a push communication that is neither relevant nor timely, sent to consumers by a firm.

Chapter 5: Discussion: This chapter discusses the results of the research in ways supported by the literature review findings, as well as the nuances the current study brings to mobile marketing research literature. Specifically, the discussion looks at the primary motivation of the research and the extent to which the smartphone phenomenon has reshaped the mobile marketing industry. This section highlights the contributions that the current paper makes to the literature.

Chapter 6: Research Limitations and Future Implications: This chapter presents the limitations of the research by calling attention to the pitfalls of the type of data collected and the issues with the anonymity clause, pursuant to an agreement with the participating firm. The chapter also

elaborates on the future implications of the study and highlights the triggering effect it may have on market researchers to explore push mobile communication strategy.

Chapter 7: Conclusion: Finally, the conclusion describes the culmination of the motivation behind the research and calls for more research to address the existing literature gap in push mobile communication in real time. The chapter also suggests that the framework developed by the current study may be used to orchestrate push mobile communication strategy by firms to understand and predict their consumer engagement.

II CHAPTER 2: LITERATURE REVIEW AND THEORY

II.1 Literature Review

This literature review began with a thorough exploration of mobile marketing literature published from 2000 to 2018. The time frame is consistent with the technological development of the first Apple iPhone, which was launched in 2007. The literature search employed a two-step process to identify pertinent contributions to the mobile marketing discourse. In the first step, the goal was to identify the overall coverage of the mobile marketing literature via a snowballing technique (Borrego, Foster, & Froyd, 2014). The following keywords were used to discover relevant papers: mobile marketing, proximity to mobile marketing, real-time marketing, smartphone marketing, mobile advertising, smartphone advertising, and consumer adoption to mobile marketing. The keywords were derived by using a Google Keywords⁴ planner tool to identify the most popular and relevant keywords in the domain. The search scope was bounded to mobile marketing strategy and applications. The primary sources of investigation were journals related to peer-reviewed marketing and practitioner marketing outlets, such as the Journal of Marketing, the Journal of Interactive Marketing, the Journal of Marketing Communication, the Journal of Marketing Research, the Journal of Advertising Research, the International Journal of Mobile Marketing, Management Science, the Journal of Retailing and Consumer Science, eMarketer, and the Journal of Marketing, which were accessed through databases such as ProQuest ABI/INFORM, EBSCOhost, Business Source Ultimate, and Google Scholar. Topics such as privacy, technology, and measurement were beyond the breadth of the current study because the focus was on mobile marketing trends and applications, not the operating mechanization. Abstracts and introductions were reviewed to eliminate all papers

⁴ <https://support.google.com/google-ads/answer/6325025?hl=en>

outside the scope of the research. The literature search returned a total of 245 publications that were deemed relevant for the second phase. In step two, the full text of each article was reviewed to eliminate papers that were not directly relevant to the research questions. Articles were eliminated based on the following additional criteria: not a mobile marketing focus, engineering and technical aspect of mobile marketing, mobile marketing privacy, mobile marketing measurement, and business-to-business mobile marketing. The final review process yielded a total of 47 articles. This process encompassed thorough reviews of the literature with over 33 source consultations, and it ended with 47 papers being accepted.

II.2 Thematic Categorizations Process

To synthesize the selected articles, a classification exercise was developed to group the research by topic areas and extrapolate key themes from the mobile marketing literature. The selected papers were categorized into the key themes to form a macroview of the mobile marketing literature. A macrolevel analysis utilizing an article-coding scheme was developed to establish a topical view of the coverage of key conversations in the literature. The coding scheme for the themes was based on the frequency of keyword mentions, the research agenda, and a summary of findings. The following themes (see Table 1) were identified: (a) mobile marketing overview, (b) permission-based marketing, (c) proximity marketing, (d) utility (perception of usefulness), and (e) topicality (relevance of marketing strategy and market offering). Table 1 contains definitions of the key themes from the literature synthesis.

Table 1: Themes Definition

Themes	Definition
Mobile Marketing Overview	A marketing overview is defined as any research with an emphasis on mobile marketing insights, challenges, and foresights.
Permission-Based Marketing	Permission-based marketing is defined as the extent to which a firm explicitly prompts customers for permission, usually when an online account is created to receive marketing communication from the firm. Customers can opt out any time after opting in (Godin, 1999; Kumar, 2017).
Proximity Marketing	Proximity marketing is defined as “free to consumer” and fully accountable, which means brands can deliver a personal experience and branded content directly onto the mobile phone of their target audience based on their proximity to a physical location and on the consumer’s desire to interact with the brand (Haines, 2008).
Utility	Utility is defined as any mobile marketing communication sent to a user that is useful in the right moment and the right environmental context.
Topicality	Topicality is defined as the extent to which information is on topic and matches a user’s domain of interest (X. Wang, Z. Hong, Y. Xu, C. Zhang, & H. Ling, 2014a).

II.3 Publication Trends

In assessing the various available literature on mobile marketing and publication trends, Table 2 represents the frequency of papers published by journals, Table 3 represents the publications by year and the distribution of topic focus by year, and Figure 2 represents the research category publication by year. A total of 47 papers were selected because they fell within the scope of the research. The 47 papers were distributed across 33 literature outlets, as listed in Table 1. Out of the 33 sources, the *Journal of Interactive Marketing* and the *International Journal of Mobile Marketing* produced six papers and five papers, respectively. The remaining journals published no more than two papers, as seen in Table 2. The coverage theme was distributed across the journals, except for the *Journal of Marketing Communication*, which focused on topicality in mobile marketing. Out of the 47 publication, 26 were published between 2013 and 2017, with a surge seen in 2014 (7) and 2016 (8).

Marketing overview is the main topic covered during this time frame, with a total of 13 papers. Topicality and utility combined have a total of 22 papers published during this time frame. Surprisingly, there has been no current research since 2015 on the themes of utility and the permission-based mobile marketing domain. Only 20 out of the 47 selected articles were categorized as empirical studies, with only two publications over the last 4 years. The remaining 27 papers were conceptual studies (5) and strategy-focused (22). The publication trends align with Apple's iPhone launch in 2007 (Kerris & Dowling, 2007). Thus, the years 2009 (5), 2014 (7), and 2016 (8) produced the most publications. Earlier in this period, scholars focused heavily on mobile strategy, which made sense because the topic was new at the time. In 2014, there was a surge of empirical studies.

Table 2: Frequency of Papers Published by Journals

Journals	# of Publication
<i>Journal of Interactive Marketing</i>	6
<i>International Journal of Mobile Marketing</i>	5
<i>Journal of Marketing Communications</i>	2
<i>Journal of Database Marketing & Customer Strategy Management</i>	2
<i>International Journal of Information Management</i>	2
<i>Mobile Marketing Association</i>	2
<i>Journal of Marketing</i>	2
<i>Journal of Retailing and Consumer Services</i>	1
<i>Society for Marketing Advances Proceedings</i>	1
<i>Mediterranean Conference on Information Systems</i>	1
<i>International Journal of Mobile Marketing</i>	1
<i>International Journal of Electronic Commerce</i>	1
<i>International Journal of Marketing Principles & Practices</i>	1
<i>Journal of the Association for Information Science & Technology</i>	1
<i>Romanian Journal of Marketing</i>	1
<i>International Journal of Economic Practices & Theories</i>	1
<i>International Journal of Retail & Distribution Management</i>	1
<i>Media Watch</i>	1
<i>Journal of Advertising Research</i>	1
<i>Journal of Marketing: AMA/MSI Special Issue</i>	1
<i>Journal of Advertising Research.</i>	1

<i>Journal of Sponsorship</i>	<i>1</i>
<i>Journal of Business Horizons</i>	<i>1</i>
<i>Management Science</i>	<i>1</i>
<i>European Journal of Marketing</i>	<i>1</i>
<i>MIR - Marketing Intelligence Review</i>	<i>1</i>
<i>GfK-Marketing Intelligence Review</i>	<i>1</i>
<i>Psychology & Marketing</i>	<i>1</i>
<i>Annals of the University of Oradea, Economic Science Series</i>	<i>1</i>
<i>International Journal of Business Information Systems</i>	<i>1</i>
<i>IEEE Advancing Technology for Humanity</i>	<i>1</i>
<i>Journal of Marketing Research.</i>	<i>1</i>
<i>Journal of Marketing Science</i>	<i>1</i>

Figure 1: Number of Publications by Year

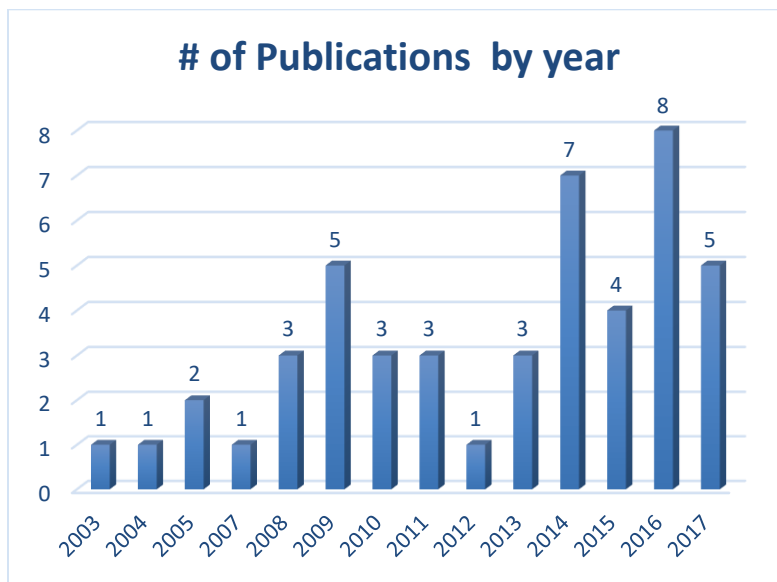
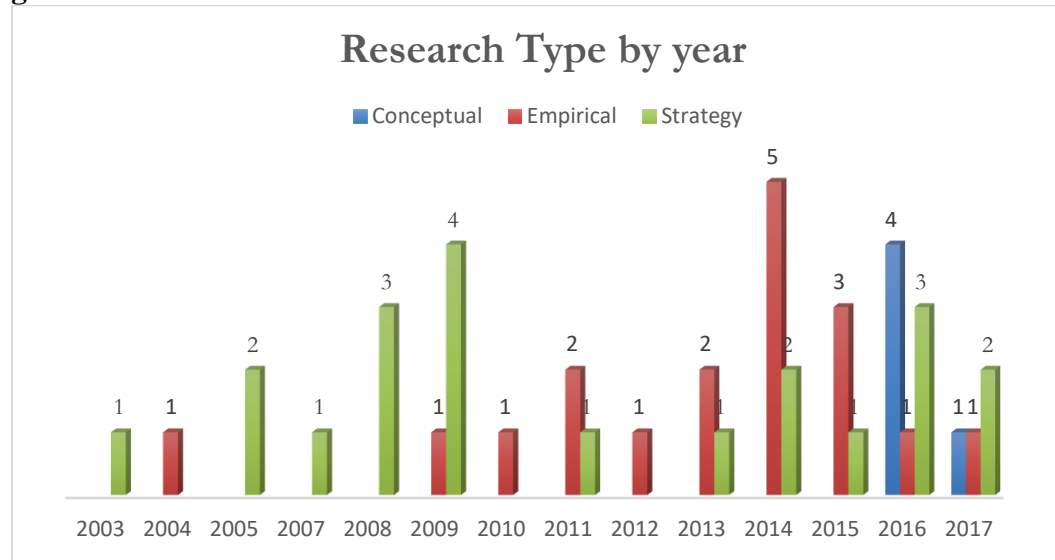


Table 3: Distribution of Topic Focus by Year

Themes	2003	2004	2005	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Grand Total
Mobile Overview				1	1	3	1				1		4	2	13
Permission (Opt-in/out)	1							1		1	1				4
Proximity topicality					1	2	1			1		4	1	1	8
Utility		1	2		1		1	2	1	1	2				10
Grand Total	1	1	2	1	3	5	3	3	1	3	7	4	8	5	47

Figure 2: Research Categorization

II.4 Mobile Promotion, Marketing, and Advertising

The demand for mobile research is growing as the adoption of mobile commerce, marketing, and advertising in the marketplace grows (Hairong & Townsend, 2008). The research on mobile marketing contains numerous gaps. The impact of mobile marketing techniques and strategies has yet to be explored thoroughly by academic and industry studies. Given the rapid increase in mobile device prevalence alongside the continuous upgrading of services provided by mobile technology, it is essential that research in this area reflect the relevant themes of time, space, and audience. A lack of research can become taxing on industry players, especially those who provide online retail services. Identifying and filling missing critical areas of focus in existing mobile marketing research is paramount to effect change.

A keen understanding of mobile advertising context can help advertisers maximize their consumer engagement by providing information on the location of potential mobile message recipients, who they are with, their surrounding activities, and how much time they would need to consider a mobile promotion. A campaign's success depends on understanding all the above-mentioned environmental considerations, the consumer, and the technological contextual variables. It also requires a strong focus on advertising goals, a consideration of market factors related to the stakeholders and the market environment, and the use of appropriate mobile ad elements to improve the relevant outcome metrics (Andrews, 2017b; Ghemawat, 2001). In this context, customers' acceptance of the marketing technique guides their purchasing decisions. Individuals view their mobile devices as private and personal; thus, advertising through these mediums requires context awareness. Context awareness includes the following elements:

- Distance: Geographically, consumers have been shown to be more responsive to promotional offers from nearby shops or events (Ghemawat, 2001).
- Time: Temporal targeting on the same day with less promotional lead time is considered an effective strategy to generate mobile sales (Andrews, 2017a; Andrews, Luo, Fang, & Ghose, 2016).
- Environment: People's responses to mobile ads depends on the environment, or what is going on around them (Andrews, 2017b).

In the early era of mobile marketing, text messages served as the primary communication and were referred to as SMS technology. The success rate of SMS communication with customers proved beneficial to businesses because of its ease. Gokhan Karaatli (2010) defined mobile marketing as the delivery of any services via mobile devices; the author also defined mobile marketing as the process of delivering marketing messages from businesses to consumers using permission-based and interactive communication services via mobile communication. As a new wave within advertising, mobile marketing has become necessary to quickly reach a significant number of customers; it also allows retailers, service providers, and manufacturers to offer consumers relevant goods and services through various campaigns.

Previous studies on mobile marketing examined this technology's framework. Varnali (2014) investigated the relevance of SMS messages and their impact on consumers' developed attitude toward brands (Varnali, 2014). The study found that, although SMS advertising is the most primitive yet widely used version of mobile marketing, the area of how SMS ads influence consumer attitudes and how this influence is generated still lacks studies (Varnali, 2014). In addition, Varnali (2014) looked at perceived intrusiveness, attitudes toward the message, and attitudes toward the brand. The study found that relevance relates significantly to people's

attitudes toward messages and toward the brand, which is an indicator of the messages' perceived usefulness. Establishing message relevance lowers perceived intrusiveness, which fosters positive attitudinal responses toward the message (Varnali, 2014). However, the SMS approach has serious limitations because consumers often view text messages from businesses as irritating (Muk, 2007, 2008; Samanta, Woods, & Ghanbari, 2009), an invasion of privacy (Basheer & Ibrahim, 2010; Windham & Orton, 2000), and brand intrusion (Monk, Carroll, Parker, & Blythe, 2004). People value freedom of choice in all areas of life, so people are prone to reject anything forced upon them, even if some deem it beneficial (Friedrich, Gröne, Hölbling, & Peterson, 2009).

II.5 Mobile Marketing Research Characteristics

Mobile phones inherently include many distinct features, such as intimacy, accessibility, personalization, interactivity, multimodality, and location awareness (Hairong & Townsend, 2008). Real-time communication hinges on knowledge of the customers' whereabouts. In studying participants' location-based marketing responses at, for example, sporting events, road shows, and trade exhibits, all responses showed a central area of customer concentration; otherwise, information extraction is a bit more challenging (Hairong, 2008). Integrating location-based information provides the tremendous ability to seamlessly integrate additional contextual information. Here, multimodality speaks to the ability to collect visual and audial data about research participants' behavior and surroundings, such as by gathering pictures and video clips (Hairong, 2008). The character insights derived from this data give marketers a precise understanding of what causes consumers to act. However, many components of mobile marketing barriers stem from a lack of consumer trust. Sharing information on the Internet has always been an issue because of a lack of trust. Users also worry about intrusiveness, spam, and

expenses (Marriott, 2007). Despite significant developments in mobile technology and the establishment of privacy laws, mobile users still hesitate to share personal information online.

Mobile marketing's impact on the global consumer landscape and their engagement with firms have led to a broad cross-section of studies aimed at understanding this form of marketing and its subsequent successes. Many studies investigated the collective and individual elements that boost profitability for consumers and firms. (Matti Leppäniemi, 2006) studied the mobile marketing literature in detail and found 21 distinct definitions or meanings of mobile marketing. According to their analysis, the definitions in the literature represent four major approaches to marketing via mobile channels. They also found that marketing through mobile channels have been implicitly or explicitly been conceptualized as (a) mobile marketing, (b) mobile advertising, (c) wireless marketing, or (d) wireless advertising. It is crucial here to distinguish the terms "wireless" and "mobile." Wireless does not necessarily mean mobile. In acknowledging this distinction for the purpose of the current research, mobile is considered a portable device, specifically a smartphone. Mobile promotion, marketing, and advertising have been categorized as separate entities in multiway communication between a retailer and its customers on a smartphone device (Shankar & Balasubramanian, 2009). However, each has a similar overtone; as such, they are considered to have the same meaning in my research.

Mobile technology has become the ultimate marketing vehicle, enabling businesses to establish a prevalent electronic presence that grants access to customers at any time and any place and, most importantly, access to new market avenues. Mobile marketing has opened up endless possibilities because firms can now research their target audience behavior through online analytical processing (Yaniv, 2008), which includes the various mobile advertising techniques used to engage consumers, such as mobile web browsing, messaging, and billing

triggers. Each method has advantages that allow customers to receive relevant information in real time. In this context, (Friedrich et al., 2009) interviewed 30 senior executives of mobile virtual network operators and major media and consumer companies between 2006 and 2008. The following factors were identified as the key components in which mobile marketing outperformed other marketing platforms:

- Customer access: Mobile marketing is exclusively available to primary users wherever they go—not only in fixed locations.
- Customer insight: Once mobile commerce gains traction, businesses can add shopping history, online store preferences, and spending patterns to the list.
- Customer dialog: The mobile phone is a distinctly personal device that reflects its primary user's use and interests.
- Customer emotions: A consumer's choice of mobile device is often a definite lifestyle statement.
- Customer transaction: Few physical boundaries exist for mobile devices.

II.6 Trends in Mobile Marketing

A 2007 study called “The State of Internet Marketing Research” found that the quantity of literature was a significant factor (Schibrowsky, Peltier, & Nill, 2007). The authors found that the three most-researched Internet marketing areas were consumer behavior, Internet strategy, and Internet communications (Schibrowsky et al., 2007). These areas were considered important topics of Internet marketing research at the time, which explains the heavy concentration of research in those areas. Gaps remained in other significant areas. A review of the existing literature on mobile marketing studies revealed a similar trend; the research on push mobile marketing is still in the development stage (Varnali & Toker, 2010). The study also looked at the

body of work on mobile marketing and summarized the progress and recommended a direction for future studies based on journals and research databases. They concluded the following:

1) Mobile marketing articles appear in various journals across many disciplines, such as management, marketing, business, engineering, information technology, information systems, finance, and operations research.

2) The key themes discovered were conceptualizations of mobile marketing and mobile commerce. Mobile commerce is also referred to as m-commerce, and the feature distinguishing it from e-commerce is the buying and selling of goods and services through a wireless and mobile handheld device.

3) Researchers have not accepted a common classification framework for mobile marketing.

4) Gaps in mobile marketing research appeared in the domains of trust, m-satisfaction, m-loyalty (m-mobile), and public policy; in addition, cross-cultural studies in the domain of mobile marketing were still scarce.

Many scholarly works exist in mobile promotion, marketing, and advertising. A study conducted in a crowded subway station found that consumers are more receptive to mobile advertisements in a crowded location and are more likely to engage with a retailer in these areas (Andrews, Xueming, Zheng, & Ghose, 2016). The study concluded that crowding makes people turn inward, immersing themselves in their smartphones. Mobile coupon promotions present one way that marketing to new customers could drive brand awareness and store traffic. With mobile promotional coupons, retailers can advertise messages via customers' smartphones when they are within the proximity of a store location. This tactic can also target consumers (Fong, Zheng, & Xueming, 2015). (Ström, Vendel, & Bredican, 2014) stated that driving consumers to mobile

advertisements can increase loyalty. (Danaher, Smith, Ranasinghe, & Danaher, 2015) showcased that mobile coupon promotion can be most effective when potential customers are targeted closer to a retailer's location. (Shankar et al., 2016) supported this argument by stating that the viability of offering a mobile coupon near a consumer's location could directly intervene and increase the purchase rate. Another study (Sam K. Hui, March 2013) concluded that mobile promotion with a coupon increased unplanned product category purchases.

II.7 Considering the Contextual Factors

Contextual consideration is critical when implementing a mobile advertising strategy. To implement an effective mobile advertising campaign, context plays a central role (Grewal et al., 2016). Mobile advertising can be perceived as intrusive (Luo, Andrews, Fang, & Phang, 2014) because people view their smartphone devices as a personal communication medium and want to have control over external communications (Watson, McCarthy, & Rowley, 2013). It is a welcome experience if, and only if, consumers consider it relevant and useful. Of consumers, 47% say they would provide smartphone location data to receive relevant advertising offers (Andrews, Goehring, Hui, Pancras, & Thornswood, 2016; Andrews, Xueming, et al., 2016). Here, location data can accelerate purchase behavior and increase customer loyalty. Consumers welcome a push mobile advertisement if they consider the communication useful, and it simplifies a transaction experience (T. A. Awad & El-Shihy, 2014). To build on this notion, (Shankar et al., 2016) stated that convenience and savings drive consumers' mobile shopping. (Fong et al., 2015) showed that competitive location targeting with reasonable discounts can increase customer purchase. In line with these studies, (Luo et al., 2014) concluded that consumers' purchasing intentions are highest when mobile advertisements appear close to the

time and location of the promoted event. Optimizing locational targeting can increase purchasing response.

II.8 Interactive Effectiveness in Mobile Marketing

One study showed that mobile marketing effectiveness can be improved via metrics such as bounce rates, add-to-cart rates, shopping cart abandonment, and average order size (Berman, 2016). The study looked at the current state of mobile marketing and highlighted some main areas for improving the effectiveness of mobile marketing, such as omnichannel and the lack of settling on a correct mobile strategy. Capitalizing on the strategic advantages of mobile marketing requires marketers to consider various advantages, including (a) mobile marketing devices always being on, connected, and with the consumer; (b) mobile marketing's ability to generate location-sensitive offers; and (c) the ability to offer highly personalized mobile marketing messages (Berman, 2016). Mobile marketing devices are primarily used for personal communication, which is companies' biggest gain from smartphones due to customization and emotional attachments. Most customers almost always have service via Wi-Fi and Internet providers; through this connectivity, marketers can generate prices that quickly match competitors' prices while immediately evaluating the effectiveness of these campaigns; all this is done in real time. Marketers' ability to generate location-sensitive offers has further developed the ability to provide consumers with special offers within a given distance to the company's retail location and to their competitors. Offering highly personalized mobile marketing messages is of great importance to marketers. Ads that appeal to consumers are promoted and tailored to their buying history, social media use, demographic data, and usage data. Essentially, mobile advertising depends on context. Mobile promotions are time sensitive. The recipients need

enough time to respond to these promotions given their distance from the promoted venue, but too much time may reduce their response rates (Andrews, Xueming, et al., 2016).

Understanding consumer behavior is vital to success, regardless of the industry and the position within a company. Market research provides insights into consumer behavior by learning about individual and group lifestyle practices that reveal the needs and wants that guide consumption patterns. With this kind of information, firms can effectively strategize to meet market demands and compete within their respective industries. However, understanding consumer behavior toward mobile advertising is challenging because mobile device penetration and services have increased rapidly over the past decade. Mobile marketing growth depends heavily on consumer acceptance and improvements in technology. Companies must keep abreast of market changes that will allow effective responses to mobile audiences, which may have unlimited access when observing users' personal relationship with their mobile device. As such, to gain a fundamental understanding of consumer behavior, it is imperative to explore topics such as permission marketing, proximity, topicality, and usefulness in mobile marketing.

II.9 **Permission Marketing**

In 1999, Seth Godin, the groundbreaking marketer and author of *Permission Marketing*, wrote that the emergence of the Internet and e-mail—and the interactivity they enable—changed all the rules (Godin, 1999). Godin correctly prophesized the ineffectiveness of one-size-fits-all advertising and warned that brands' freedom to invade our living rooms with commercials that interrupt TV viewing, to command attention with unannounced telemarketing calls, or to fill mailboxes with unsolicited offers had been replaced by a new paradigm (Vlad, 2011): mobile advertising (Haghirian & Dickinger, 2005; SUHER & İSPIR, 2011).

Earlier studies indicated that permission-based mobile advertising is more acceptable than others, suggesting that users like to feel in control of the communication (Barwise & Strong, 2002). Mobile phones are more personal than any other medium (Barwise & Strong, 2002; Salo & Tähtinen., 2005), so mobile marketing offers a potentially more accurate and wider audience. People customize their mobile devices and regard them as an extension of their personal identities (Vlad, 2011). Hence, the permission-based approach can develop trust between companies and consumers by giving consumers some control over the messages with options to opt in or opt out (Godin, 1999). This approach gives consumers a sense of inclusion in the marketing process because they feel their opinions are valued and that products are not forced upon them.

There are two types of permission marketing, namely opt-in and opt-out marketing. Opt-in marketing refers to firms explicitly asking customers for permission, usually when creating an online account. Customers can opt out at any time after they opt in (Kumar, 2017). Most subscriptions provide this option, which is generally located at the bottom of all e-mails sent from the vendor site. Permission marketing's three main characteristics are "anticipated, personal, and relevant" (Godin, 1999, p. 40; (Kumar, 2017). Firms can personalize the marketing messages according to customers' specific interests and tailor the promotional information included in the message based on the customer's past purchase behavior (Kumar, 2017). Research on permission marketing in this area has explored several factors that influence a customer's willingness to give permission to marketers, including brand equity, a previous relationship (Tezinde, Smith, & Murphy, 2002), income, gender, advertising message volume, previous experience with mobile ads (Barnes & Scornavacca, 2004), and brand image and trust (Jayawardhena, Kuckertz, Karjaluoto, & Kautonen, 2009; Kumar, 2017).

II.9.1 *Mobile-Permission Marketing*

Mobile marketing testing began in Europe in the early 2000s; it was considered a phenomenon of youth and was explored via SMS messaging. Worldwide mobile marketing test drives have proliferated connectivity between firms and consumers, with the UK as the innovation laboratory (Petros et al., 2003). The study noted the advantage of mobile marketing by citing Forrester Research's previous studies, where three marketers agreed that SMS marketing had interesting features: high-speed message delivery, interactivity, high customer reach, and a response rate five times higher than direct mail. However, the authors were mindful of the personal nature of the mobile phone and urged firms to recognize permission-based marketing as the appropriate context for mobile marketing (Petros et al., 2003), writing that mobile marketing must deliver relevant, requested, and interactive content to customers to be an effective and lucrative industry. End-user privacy must be respected. Therefore, permission marketing's opt-in option with clear opt-out instructions is the most efficient way to proceed.

Another important factor in permission marketing is approach's creation of trust in customers for a specific brand. This trust does not necessarily increase brand loyalty, thanks partly to steep competition, but it is especially crucial for more experienced users. Chhateja and Jain (2014) discussed Generation Y as people born between 1978 and 1992 who are technology savvy, well-educated, and more ethnically diverse than any previous generations. This generation is loyal to digital media and flexible to new technology (Chhateja & Jain, 2014). Generation Y perceives mobile devices as a symbol of individuality (Chhateja & Jain, 2014; Taylor & Harper, 2001)). Hence, the information's relevance is key to obtaining permission for engagement. Here, permission marketing emphasizes building an ongoing relationship of increasing depth with customers by obtaining customers' consent to receive information from companies (Carroll & Barnes, 2005; SUHER & İSPIR, 2011). According to Godin (1999), permission marketing is

anticipated (people look forward to hearing from you), personal (the messages are directly related to the individual), and relevant (the marketing is about something the consumers is interested in (Suher & İspir, 2011). In permission marketing, people give their permission for marketers to educate them on their products. Permission marketing, Godin (1999) argued, encourages consumers to participate in long-term, interactive marketing campaigns in which they are rewarded for paying attention to increasingly relevant messages (Petros et al., 2003).

II.10 Proximity

Mobile marketing is time sensitive. The proximity to an event is critical in delivery performance (Andrews, Xueming, et al., 2016; Grewal et al., 2016; Hui, Inman, Yanliu, & Suher, 2013). Proximity in relation to marketing is especially important in reaching consumers within their locality. In brief, proximity mobile is free to the consumer and a fully accountable way brands can deliver a personal experience and branded content directly to their target audience's mobile phones based on the consumers' proximity to a physical location and the consumers' desire to interact with the brand (Haines, 2008). Firms and service agencies have found value in this form of advertising, which uses Bluetooth and Wi-Fi technology to transmit myriad marketing campaigns. Proximity-based marketing grants the ability to customize content based on the user's location, bridging the physical and digital context to provide actionable content at a relevant time. The more time the customer spends on his or her mobile device, the more firms will be willing to spend millions on targeted mobile ads. Ultimately, the gathered data aim to inform what, when, where, and why people shop, all while providing firms with prime opportunities to mobilize their products using customers' insights. As consumers spend an increasing amount of time on their mobile devices, marketers are increasingly able to target them in real time based on their locations (Fong et al., 2015). Retailers, however, may find this

targeted approach particularly challenging due to the volume of competition within their respective markets, all of which are competing for consumer attention within a certain proximity. Another deterrent to investing in such mobile technology is the lack of reliable data that support the effectiveness of proximity-based marketing. Prior research has not adequately quantified the efficacy of competitive locational targeting (Fong et al., 2015). Also, empirical evidence on competitively targeted promotions is surprisingly limited. Substantial data is key to location-based marketing. Without reliable data to guide retailers' capitalization on location-based marketing and to provide investment incentives in mobile technology, companies may see such technological advancements and widespread customer engagement and maintenance as unattainable.

(Hui et al., 2013) examined proximity's importance by focusing on the lack of literature on in-store unplanned spending, despite its frequency. Empirical analyses and previous simulations would lead one to believe that "shoppers in the far condition would, on average, spend more on unplanned purchases than shoppers in the near condition" (Hui et al., 2013). In other words, the more distance there is, the more likely a person is to engage in unplanned spending. Hence, the success of online shopping as persons deem these items scarce commodities.

II.10.1 *Real-Time Mobile Marketing*

Real-time mobile marketing is an instant promotion that reaches consumers via the advertised material and factors that influence their shopping decisions. Traditionally, marketing requires planned execution according to immobile scheduling, which often allows ideas to be stolen or for information to be inconsequential on public release. Mobile technology makes traditional marketing techniques impractical because of the massive turnaround time with mobile

advertising as the primary form of marketing. For example, when the power went out at the Superdome in 2013 during the Super Bowl, Oreo tweeted an image of one of its cookies with the caption, “You can still dunk in the dark.” All eyes focused on Twitter during the blackout, so the brand saw an opportunity to reach a massive audience, and the free ad has since been retweeted more than 15,000 times. Real-time marketing also operates on the accurate premise that the web destroys yesterday’s content and demolishes loyalties (REID, 2014). Analytics-based marketing and advertising is approximate, but it feels well-reasoned and sits comfortably in boardroom presentations; real time is unfathomable, quirky, and a little bit out of control. Critics of real-time marketing say one big problem is losing control of the brand. Advertisers may lose control over where their ads are placed, which could compromise brand safety (Reid, 2014). However, many customers use their smartphones to shop; thus, wise marketers should understand consumer traffic flow to concentrate their mobile marketing efforts. Nonetheless, the specific overall goals and terms now permeate the ecosystem of data-driven, agile, and real-time marketing.

II.11 Topicality

All forms of marketing communication depend on topical content. However, in the mobile environment, users also require relevant communication because the mobile environment is personal (Grewal et al., 2016). Here, I define relevance as the subjective and contextual judgment of information. When targeting an audience through mobile channels, communication relevance must be considered. A significant component of relevance judgment is contemporaneity, in which users’ subjective perception of information reception and the current application depends upon their interests rather than the satisfaction of mechanical criteria, such as those implemented by search engines. Mobile advertising that is not significant to its audience is counterproductive. In an age of mobile commerce, commercial messages flood users’ devices,

and most ads successfully trigger consumer engagement through relevance-based advertising. (X. Wang, Z. Hong, Y. C. Xu, C. Zhang, & H. Ling, 2014b) examined the relevance of mobile commercial information by investigating how users judge the relevance of commercial information. What are their privacy concerns when receiving commercial information? How do message content and contextual factors, such as location and time, affect relevance judgment and privacy? The results indicated that topicality, reliability, economic value, and location are the significant direct antecedents of mobile commercial information (MCI) relevance. Topicality and economic value have a synergetic effect on MCI relevance, which indicates that marketing messages should integrate content individualization and promotion for increased effectiveness. However, the study found that message timing was not significant to the message's perceived relevance, possibly because of important factors related to product or service need.

An effective mobile marketing strategy requires reliable information about consumer responses to mobile advertising. Mobile ads inform customers of available goods and services, but most users find ads bothersome because they often pop up at inconvenient times and are sometimes irrelevant to the current mobile activity. As such, focusing on the precise extent to which users' attachment to their mobile device influences receptiveness to mobile advertising is crucial to the exploration of the improved advertising methods. (Kolsaker & Drakatos, 2009) focused on users' emotional attachment to their mobile devices. The researcher proposed three hypotheses, two of which are relevant to this study:

1. H2: There is a relationship between the strength of one's emotional attachment to the mobile device and the perceived benefits of mobile advertising (Kolsaker & Drakatos, 2009).

2. H3: There is a relationship between the strength of emotional attachment to the mobile device and one's receptiveness to mobile advertising (Kolsaker & Drakatos, 2009).

The study indicated that emotional attachment influences user perceptions of mobile advertising and receptiveness to mobile ads. However, the results indicated only a moderate appreciation of such benefits and rather lukewarm receptiveness overall. Nonetheless, receptiveness is marginal because attachment to a mobile device does not guarantee advertisement acceptance. The research shows that users who are emotionally attached to their mobile devices react positively to such initiatives, provided they feel they are contributing rather than merely receiving communication intended to trigger a buying response. (Watson et al., 2013) showed that the usefulness of mobile advertisements facilitates acceptance because smartphone users employ their devices for a range of activities, including Internet access, e-mail access, and social networking. The data analysis provided clear evidence that consumers rely on their phones for a range of communication, information, and entertainment purposes, and the study emphasized that users consider unsolicited information is intrusive. The respondents indicated that they use their smartphones primarily for personal purposes and that mobile contact from companies is annoying and intrusive. In all, 97.4% of respondents strongly preferred or tended to prefer mobile contact from friends rather than companies. The study found that incentives, such as competitions, discounts, and gifts, did not make mobile advertisements more acceptable. However, the respondents had more positive responses to ticketing, appointments, and travel alerts, indicating that consumers welcome mobile marketing communication when they perceive such communication as useful.

II.11.1 *Customer Experience*

Smartphone users' adaptation to mobile marketing has added another element to customer experience. Customers can now shop online via their smartphones anywhere and at any time, making businesses' mobile presence the first point of contact. Mobile technology's ability to target individual consumers and the near ubiquity of mobile devices make mobile marketing quite useful and efficient (Gokhan Karaatli, 2010b). (Gokhan Karaatli, 2010a) studied the five stages of consumer decision-making that ultimately determine the customer experience by investigating the following six hypotheses:

- **H1:** Consumers who believe mobile services improve their overall shopping experience are more likely to use mobile services in shopping than those who do not share this belief.
- **H2:** Consumers who believe mobile services improve their shopping experience at the need recognition stage are more likely to use mobile services in shopping than those who do not share this belief.
- **H3:** Consumers who believe mobile services improve their shopping experience at the information search stage are more likely to use mobile services in shopping than those who do not share this belief.
- **H4:** Consumers who believe mobile services improve their shopping experience at the alternative evaluation stage are more likely to use mobile services in shopping than those who do not share this belief.
- **H5:** Consumers who believe mobile services improve their shopping experience at the purchase stage are more likely to use mobile services in shopping than those who do not share this belief.

- **H6:** Consumers who believe mobile services improve their shopping experience at the post purchase stage are more likely to use mobile services in shopping than those who do not share this belief (Gokhan Karaatli, 2010a).

The study's results supported all six hypotheses, indicating that consumers who believe mobile shopping assistance services improve their shopping experience overall and at each stage of the consumer decision-making process are more likely to use such services than consumers who do not share this belief (Gokhan Karaatli, 2010a).

II.12 Utility

Utility is critical to consumers' response to mobile communication. Consumers are fluid (Bardhi & Eckhardt, 2017) and ephemeral in nature, so they have for immediate and reliable customer service from firm (Kivetz & He, 2017). Prior to current smartphone penetration and pervasiveness levels, studies focused on SMS and multimedia messaging as mobile marketing tools (Varnali, 2014). These studies showed that users' receptiveness to advertising relied heavily on eye-catching content that appeared useful (Samanta et al., 2009). Information communicated through mobile marketing often related to health (e.g., pill reminders), entertainment services (e.g., music downloads, gaming, gambling, and sports scores), location-based services (e.g., finding nearby facilities or services, transportation information, and tour guides), film and concert ticketing, shop and restaurant discount coupons, shipment tracking, comparison shopping, and banking and bill payment (Yuan & Zhang, 2003), as well as fashion and beauty beginning with the release of the iPhone in 2007. Regarding advertisement content, many researchers have produced evidence that indicates the importance of content quality and utility in successful mobile marketing. When asked to rate their feelings and behaviors related to mobile application use, smartphone users indicated that they felt positively about brands with

useful or entertaining apps and that they valued personal service, suggesting that permission-based advertising remains ideal and demonstrating that consumers are more willing to receive marketing texts from the companies they like and trust (X. Wang et al., 2014a). Companies must understand the complexities of mobile marketing. When considering push mobile communication, they must take into consideration the four most important aspects of information: permission, acceptance, relevance, and usefulness.

II.13 Theoretical Framework

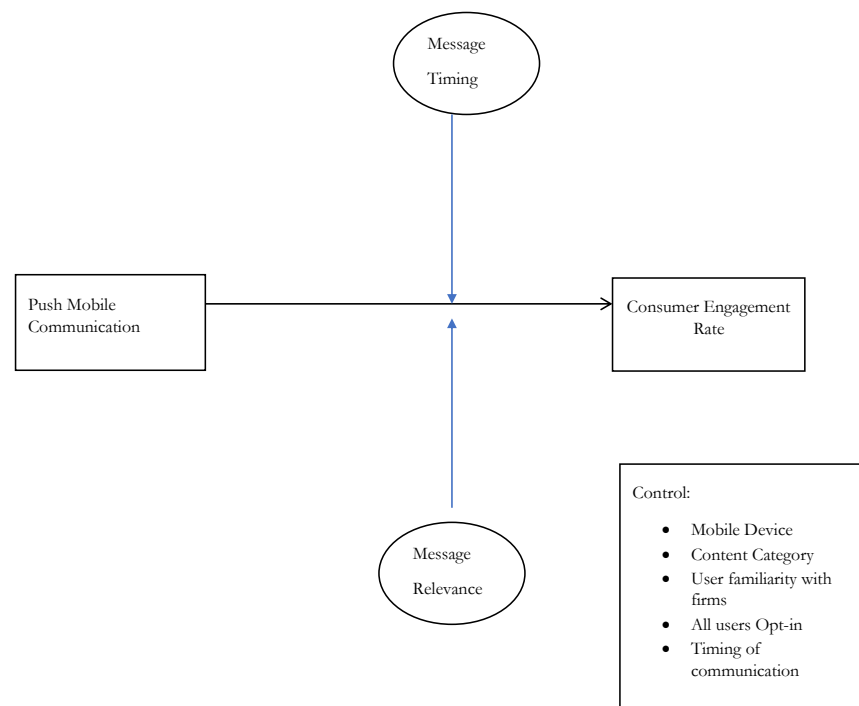
The theory of *being in the moment* (Kivetz & He, 2017) is appropriate for studying the extent to which timing and personalized push mobile communication influence consumer engagement rates. Kivetz and He (2017) discussed this theory and suggested that ephemeral messaging promotes increased interpersonal closeness by making people ruminate less and focus on the task at hand. Acting in the moment enhances users' openness and creativity because they rely less on past information and outcomes. People take interest in activities they consider ephemeral, so ephemeral communication between firms and consumers can increase users' confidence and satisfaction with firms because users consider such communication authentic.

The theory of being in the moment originates from the theories of mindfulness and flow. The theory of mindfulness holds that focusing on activities from moment to moment anchors one's attention and creates an immersive experience (Brown & Ryan, 2003; Hanh & Hoa, 1976; Kabat-Zinn, 1990). An example of this is focusing on breathing, an activity that changes from moment to moment. The theory of flow posits that by directing and sustaining attention on challenging activities in the present, one enters a mental state, or flow, that leads to moment-to-moment immersion in that activity (Fortin & Dholakia, 2005; Kubey, Larson, & Csikszentmihalyi, 1996; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2014).

II.14 Conceptual Model Specification

In this section, I discuss the development of a conceptual model based on the mobile marketing and real-time marketing literature reviews. The literature review indicated that the core pillars of an effective mobile marketing communication strategy must be opt in (Godin, 1999), mobile time sensitivity (Hui et al., 2013), relevance (Grewal et al., 2016), and usefulness (Berman, 2016; Gokhan Karaatli, 2010a; Pagani, 2004; X. Wang et al., 2014b). Against this backdrop, I developed a variance push mobile communication conceptual model (figure 3). Push notifications are a relatively new phenomenon in the mobile marketing literature (T. A. Awad & El-Shihy, 2014); the model's variables comprise push mobile notification, messaging timing, message relevance, and consumer engagement rate. The model predicts a high consumers' push mobile marketing communication response among users; however, message timing and relevance moderate the degree of the response.

Figure 3: Ephemeral Push Mobile Communication



II.15 Push Mobile Communication

Push notification is a new smartphone marketing intended to reach a firm's consumers (A. Awad & El-Shishy, 2014). As an advertising medium, push notifications complement SMS and MMS messaging, but the extent to which push notification complements SMS and MMS has not been sufficiently explored. Push notifications are built-in communication channels inside mobile devices and were first introduced with the iPhone. The push notification platform is supported by the Apple Push Notification Service (APNS), which sends notifications to iPhone, iPad, and iPod devices. Push notifications engage users using short messages sent by apps through which the user can respond to these notifications. Push notifications send alerts on smart devices related to new features and application updates; also, can be utilized to provide information about coupons and new offers and communicate information about events to users to implement a personalized peer-to-peer messaging. In this context, the current study explores consumer engagement in marketing communication sent through push notifications to explore the effectiveness of leveraging push mobile marketing as an active marketing communication channel. The current study examines the degree to which timely, topical messages affect consumer engagement and users' responses to push mobile communication. Following (Kivetz and He (2017), I defined push mobile communication is as an ephemeral message that is triggered on a consumer's smartphone and automatically disappears after the message has been viewed (Kivetz & He, 2017). To be eligible for push notifications from firms, consumers must install mobile applications on their devices and opt into mobile notifications. Firms have begun experimenting with push marketing applications across many platforms. For example, the airline industry uses push notification applications extensively. Delta Airlines, a U.S. airline company, utilizes push communication to provide travelers with real-time information about flight status, such as boarding, delays, and luggage location. Uber, a mobile ride sharing firm, utilizes push

notifications to provide real-time driver statuses to consumers. Uber has also implemented new features that allow consumers to provide real-time locations to other users. Push notifications trigger high engagement rates because these messages are relevant and timely.

II.16 Messaging Timing

Mobile communication is time sensitive (Andrews, Luo, et al., 2016; Grewal et al., 2016; Luo et al., 2014). Same-day temporal targeting with less promotional lead time generates mobile sales effectively (Andrews, Goehring, et al., 2016). Users' responses to mobile communication are tied to their environment (Andrews, 2016). I measure this variable whether the communication occurs in real time or not real-time. Real-time communication, or time-sensitive communication without transmission latency,⁵ utilizes mediums such as voice, live chat, and video.⁶ The current study measures timing on two dimensions: real time (RT) and not real time (NRT). The RT dimension includes communication initiated by the user in response to event or activity while the user engages with that activity. The RT trigger is in-application push notifications. The NRT dimension includes push communication to the consumer after exiting the activity. The NRT period in the current study is three days after the users exit the application.

II.17 Message Relevance

Message relevance in the conceptual model adopts Xu and Chen's (2006) definition of topicality: "the extent of which the information is on topic and matches the user's domain of interest." Three critical factors establish messages' relevance to mobile device users: utility, reliability, and topicality (X. Wang et al., 2014b). Utility variable is defined as the communication's perceived usefulness to the user (Berman, 2016; Gokhan Karaatli, 2010a).

⁵ <http://miituu.com/blog/real-time-vs-non-real-time-communication-channels>

⁶ <http://miituu.com/blog/real-time-vs-non-real-time-communication-channels>

Mobile device users are typically on the go, and, as such, mobile communication is time sensitive and must be beneficial (Andrews, Goehring, et al., 2016; Berman, 2016; Grewal et al., 2016). Reliability refers to content trustworthiness (X. Wang et al., 2014b). Is the information promoted in a trustworthy manner, and will such information fulfill its promises? In addition, users must control the communication they receive (Carroll & Barnes, 2005). They should be able to opt in or out of the communication (Godin, 1999) because mobile devices are personal (Grewal et al., 2016) and users' environments influence their mobile communication response rates (Andrews, Xueming, et al., 2016). As such, the conceptual model predicts that message relevance moderate consumer engagement rate in push mobile communication.

II.18 Consumer Engagement Rate

Users engage with ephemeral mobile communication (Kivetz & He, 2017). Furthermore, when messages are useful and timely, engagement increases (T. A. Awad & El-Shihy, 2014; Pagani, 2004). In addition, when users are mindful of their activities, they become more engaged (Brown & Ryan, 2003; Hanh & Hoa, 1976; Kabat-Zinn, 1990). Users who focus on the present and filter out distractions operate in the moment; this is also the case with ephemeral messaging (Kivetz & He, 2017). Engagement rate is the current study's outcome variable. I define the primary engagement rate measured in the present study as the total time spent by participants when engaging with the content destination after receiving a push mobile communication. I also measure the financial impact on the business—in this case, the consultation request rate—as a secondary engagement measure. Modern consumers are fluid, and they expect relevant, timely communication from firms (Bardhi & Eckhardt, 2017). Further, when users cannot control the messages they receive from firms and the messages are not relevant, they lose trust in the firms (Godin, 1999; Watson et al., 2013). When users operate in the moment, they are more engaged

and open to communication from firms (Kivetz & He, 2017). In the mobile environment in particular, users become more engaged when messages are useful at the time of their receipt (Berman, 2016; Gokhan Karaatli, 2010a; Pagani, 2004; R. J.-H. Wang, Malthouse, & Krishnamurthi, 2015). Because push mobile communication is ephemeral and, more importantly, because consumers can opt in or out, the following expectations arise.

II.19 Hypotheses

In my review of the current literature, I identified significant gaps in mobile marketing research. I found few studies on the impact of real-time mobile marketing, especially push mobile marketing or push notifications. All the literature on push notifications was published between 2014 and 2016 and made limited academic contributions. My current research fills this gap by providing a current academic account of the impact and pervasive nature of push notifications. The literature indicates that timing and topicality are key components that drive mobile marketing consumer engagement rates. However, the literature review revealed a gap in the push and real-time mobile marketing literature. I explore the following hypotheses using the theory of being in the moment to investigate the extent to which real-time communication and relevance impact push mobile marketing.

1. **H1:** Push mobile communication with relevant content (RC) that is NRT will have a higher engagement rate compared with push mobile communication content that is not relevant (NRC) and NRT.
2. **H2:** Push mobile communication with RC transmitted in RT will have a higher engagement rate compared with push mobile communication that is NRC and NRT.

3. **H3:** Push mobile communication with RC transmitted in RT will have a higher engagement rate compared with push mobile communication that is NRC and RT.
4. **H4:** Push mobile communication with RC and transmitted in RT will have a higher engagement rate compared with push mobile communication that is RC and NRT.

III CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

III.1 Research Design

I designed this research as collaborative engaged scholarship, which is best suited to bridge the gap between practice and theory (Mathiassen & Nielsen, 2008; Van de Ven, 2007). The study answers the following research question: To what extent does real-time context and content relevance in push mobile communication impact customer engagement? The investigation studied 11,828 first-time users of an online aesthetic marketplace firm's mobile application. Data were collected through the firm, which opted to remain anonymous. Table 5 outlines the research design.

Table 4: Research Design

Variable	Treatment 1: RT/RC	Treatment 2: NRT/RC	Treatment 2: NRT/NRC	Treatment 3: RT/NRC	Treatment 4: NRT/NRC	Treatment 5: No Push
Content Preference	Botox	Botox	Botox	Botox	Botox	Botox
Mobile Application Operating Sys.	IOS	IOS	IOS	IOS	IOS	IOS
User Status	New Mobile Application Users	New Mobile Application Users	New Mobile Application Users	New Mobile Application Users	New Mobile Application Users	New Mobile Application Users
User Location	US	US	US	US	US	US
Push Type	In App	Not in App	Not in App	In App	Not in App	In App
User Environment	In App	Not in App	Not in App	In App	Not in App	In App
Communication Timing	Real Time	3-Day Latent Push	3-Day Latent Push	Real Time	3-Day Latent Push	None
Content Promoted	Botox	Botox	Face-Lift	Face-Lift	Face-Lift	None

III.2 Data Collection Method

I collected data during the period February 2–28, 2019. In partnership with an online aesthetics marketplace firm, I collected data from real first-time users of the firm’s iOS mobile application using a quantitative experimental design method. The research setting was the company’s application. I selected participants randomly from among first-time users, whom I defined as users who had never downloaded the firm’s mobile application. I determined these data by leveraging the firm’s mobile analytics data platform. The platform captured each user’s mobile identification number and stored this in the firm’s internal database but collected no personally identifiable information, such as name, age, phone number, or e-mail address. The application identified users in real time as they downloaded the application. As a standard practice, the firm’s mobile application prompted participants to opt in to receive push notifications. The application collected user’s opt-in data after users downloaded the mobile application. In addition, during the application onboarding process, the application prompted users to select the treatment they wanted to follow and receive communications about. I utilized these data to determine relevance for each user. Table 4 contains the data collected for each participant. I restricted the experiment to participants who selected Botox as their preferred treatment because Botox is a high-volume treatment category that facilitates faster and richer data collection. Botox requires recurring treatments every 3–4 months; the average cost is \$550 per treatment.⁷ The alternative to Botox is a face-lift. On average, face-lifts cost \$7,500,⁸ but unlike Botox, the procedure is a one-time surgical treatment.

⁷ <https://surgery.org/sites/default/files/ASAPS-Stats2017.pdf>

⁸ <https://surgery.org/sites/default/files/ASAPS-Stats2017.pdf>

Table 5:Data Collected

Data Collected	Description
Mobile ID	The mobile ID is a unique alphanumeric identification code assigned to each user who downloaded the application.
Content preference	The application prompted users to select their preferred treatment. This determined the content the users saw in the application. For example, users who selected Botox only saw Botox providers, testimonials from consumers who had Botox, and customer experiences related to Botox.
User location	The device identified the users' locations. Captured information included country, DMA, city, and zip code.
User status	The application identified new and returning users. New users had downloaded the application for the first time. If users deleted the application, their history was deleted, but if they reinstalled the application and authenticated their previous user names and passwords, they were considered returning users.
Time in app	Time in application measured users' total time spent in the application once the application was opened. The clock started when the mobile application launched and stopped when the user exited the application.
Pages/screen views	The application included several screens and pages, such as the home feed, the doctor finder, and contact request page.
Time spent on page/screen	This reflected the total time spent engaged with the application's various screens and pages.
Contact request	This metric represents the total number of consumers who submitted a request to a provider expressing interest in their procedures. This metric is the firm's unit of monetization.

III.2.1 *Research Data Management*

I designed this process to ensure that the research process met the core research design principles and the participating firm's requirements. The university's Institutional Review Board (IRB) requires each researcher to submit a proposal clearly outlining all intended research methods for authorization to begin data collection. The IRB issued a certification with specific guidelines to be fulfilled on approval. Due to the type of experimental research, the university's IRB considered the research low risk. The IRB considerations were made in the following areas:

- **Privacy:** The aesthetic firm required that its identity be concealed. I extended this consideration to all participants and collected no identifiable information, ensuring confidentiality.
- **Data Access and Sharing:** I used Google Analytics and Leanplum, a mobile marketing platform built for engagement, to measure and store data.
- **Intellectual Property Rights:** The participating company maintains exclusive data rights, but this research will be made available for viewing and use in the university library with specific permissions reserved at the author's discretion.
- **Roles and Responsibilities:** The firm's data warehouse stored the study data on Microsoft's One Drive storage unit. I performed data cleaning and organization in Microsoft Excel and uploaded to SPSS for statistical analysis.

III.3 Sample Selection

I split the participants into five random groups (Table 5) to align with the conceptual model: (a) RT and RC, (b) RT and NRC, (c) NRT and RC, (d) NRT and NRC, and (e) participants receiving no content (control). Participants across all treatments performed the same task except for the control group, which received no marketing communication. Participants in each group received one message, and I measured total time spent on the doctor finder page, total time spent on the site, and contact requests across the groups. The primary dependent variable was the total time spent on the doctor finder page. However, I measured the total time on site and contact requests as secondary outcome variables of interest. The participants in the first group (RT/RC) received real-time, relevant push communication after they downloaded the application, selected their treatment preference for Botox, and chose from a list of Botox providers. The participants in the second group (NRT/RC) received push communication three days after they

downloaded the application and had not returned to the Botox provider page. The participants in the third group (RT/NRC) received a real-time in-application messages after they completed onboarding and selected Botox as their treatment preference. The messages prompted them to select from a list of face-lift providers. The fourth group (NRT/NRC) received push communication three days later after downloading the app prompting them to select a local face-lift provider. No push communication was sent to participants in the fifth group (control). I conducted the experiment between February 2, 2019, and February 28, 2019.

III.4 Control Variable

To control for exogenous effects, I restricted the experiment to one treatment category: Botox. Consumers who expressed interest in Botox have similar characteristics⁹ in terms of gender and age. Overall, 89% of Botox users are women between the ages of 35 and 65.¹⁰ I controlled for content relevancy using the participants' self-selection to receive marketing communication about Botox. I controlled for timing in two ways. For RT, the participants received communication while they were engaged and immediately after they selected their treatment preference. For NRT, all participants received a push communication three days after they downloaded the application and had not returned to it. I also implemented quiet hours from 10 p.m. to 8 a.m. based on the participants' local time zones. To control for potential differences in mobile device operating systems, I restricted the experiment to users with Apple iPhones that had the ability to receive push notifications. Finally, I controlled for price point differences between Botox and face-lifts in two ways. First, regarding treatment category relevance and user similarity, a face-lift is an alternative surgical option for users seeking antiaging treatments.

⁹ <https://surgery.org/sites/default/files/ASAPS-Stats2017.pdf>

¹⁰ <https://www.surgery.org/sites/default/files/ASAPS-Stats2017.pdf>

Botox and face-lifts have similar user demographics. Second, price point differences even out over time because users know that Botox must be done many times.

IV CHAPTER 4: DATA ANALYSIS AND RESULTS

In collaboration with a large online aesthetic marketplace firm, I tested the conceptual model and hypothesis against a sample of 11,828 mobile application users. I organized and analyzed the data using IBM SPSS and Microsoft Excel. I cleaned the data to remove outliers by utilizing the interquartile rule (Leys, Ley, Klein, Bernard, & Licata, 2013). The outliers represented 1.6% of the total sample size. I considered the total time spent on the doctor finder page the primary outcome variable. The means for users' total time spent on the treatment and doctor finder pages, measured in seconds (Figure 5), are as follows: RT/RC = 103.5, NRT/RC = 97.90, NRT/NRC = 43.06, RT/NRC = 93.27, and control = 42.13. The means for users' total time spent (Figure 6) on the website browsing additional content for each treatment group, measured in seconds, are as follows: RT/RC = 4,332, NRT/RC = 3,984, NRT/NRC = 3,527, RT/NRC = 3,776, and control = 2,544. Finally, the total contact request rate means for each treatment group are as follows: RT/RC = .06, NRT/RC = .06, NRT/NRC = .03, RT/NRC = .05, and control = .04. I used a two-sample t-test for an unequal variance to analyze the four hypotheses. The results are presented below.

Figure 4: Descriptive Statistics: Time Spent on the Doctor Finder Page (Seconds)

	Descriptive Statistics										
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
RT/RC_time on Dr. Finders	2081	5589.075000	.0000000000	5589.075000	103.5245416	8.882470238	405.2003400	8.537	.054	89.795	.107
NRT/RC_Time on Dr. Finders	2156	3466.508000	.0000000000	3466.508000	97.90296892	6.341878890	294.4708584	5.487	.053	38.252	.105
NRT/NRC_Time on Dr. Finders	2245	625.1480000	.0000000000	625.1480000	43.06302004	2.054375572	97.33925433	3.218	.052	11.535	.103
RT/NRC Time on Dr. Finders	2150	2699.846000	.0000000000	2699.846000	93.27036047	6.025870501	279.4081206	5.172	.053	31.835	.106
Control_time_on Dr. Finders	2193	645.1500000	.0000000000	645.1500000	42.13070907	2.072822841	97.06921142	3.291	.052	12.171	.104

Figure 5: Descriptive Statistics: Total Time on Site (Seconds)

	Descriptive Statistics										
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
RT/RC_Total Time on Site	2081	149372	87	149459	4332.84	199.814	9115.130	7.267	.054	79.594	.107
NRT/RC Total time on Site	2156	116243	155	116398	3984.63	182.282	8463.856	6.710	.053	63.062	.105
NRT/NRC Total time on Site	2245	199614	16	199630	3527.80	198.785	9418.733	11.919	.052	204.158	.103
RT/NRC Total Time on Site	2150	106840	56	106896	3776.57	165.214	7660.677	6.389	.053	57.936	.106
Control Total Time on Site	2193	22190	7	22197	2544.01	71.657	3355.649	2.765	.052	9.165	.104

Figure 6: Descriptive Statistics: Total Contacts

	Descriptive Statistics										
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
RT/RC_Contacts	2081	11	0	11	.06	.010	.445	14.369	.054	280.862	.107
NRT/RC Contacts	2156	7	0	7	.06	.008	.353	9.583	.053	129.617	.105
NRT/NRC Contacts	2245	5	0	5	.03	.005	.248	11.982	.052	184.971	.103
RT/NRC Contacts	2150	5	0	5	.05	.007	.328	9.464	.053	106.402	.106
Control Contacts	2193	11	0	11	.04	.007	.343	19.797	.052	535.083	.104

H1: Ephemeral push mobile communication with RC that is NRT will have a higher engagement rate compared with ephemeral mobile communication that is NRC and NRT.

The mean score for the total time spent on the doctor finder page (Figure 8) for participants who received NRT and RC ephemeral push mobile communication ($M = 97.90$, $SD = 294.47$, $n = 2,156$) was significantly higher than that of participants who received the NRT and NRC ephemeral push mobile communication ($M = 43.063$, $SD = 97.32$, $n = 2,245$) when using a two-sample t-test for unequal variances, $t(2,603) = -8.226$, $p < = 0.000$. Conducting a robustness test, I compared the total time spent on the doctor finder page against the participants received no ephemeral push mobile communication. The mean score of time spent on the doctor finder page for participants receiving NRT and RC ephemeral push mobile communication ($M = 97.90$, $SD = 294.40$, $n = 2,156$), when compared with that of participants who received no ephemeral marketing communication ($M = 42.13$, $SD = 97.04$, $n = 2,193$) also indicated a significantly higher engagement rate when using the two-sample t-test for unequal variances, $t(2,306) = 6.731$,

$p < 0.000$. Finally, to understand the impact on business outcomes, I analyzed the contact rate, which is the firm's unit of monetization. The mean contact rate score for the participants in the NRT and RC ephemeral communication group ($M = .057$, $SD = .35$, $n = 2,156$) was significantly higher than that of the participants who received NRT and NRC ephemeral push mobile communication ($M = .003$, $SD = .35$, $n = 2,245$) when using the two-sample t-test for unequal variances, $t(3,853) = -2.90$, $p < 0.0037$. As such, the data support the hypothesis.

Figure 7: Time Spent on Doctor Finders T-test results: NRT/RC vs. NRT/NRC
NRT/RC vs. NRT, NRC (0,0)

t-Test: Two-Sample Assuming Unequal Variances

	NRT/NRC	NRT/RC
	<i>time_on_finder_page</i>	<i>on_finder_</i>
Mean	43.06302004	97.90297
Variance	9474.930433	86713.09
Observations	2245	2156
Hypothesized Mean Difference		0
df		2603
t Stat	-8.226414136	
P(T<=t) one-tail	1.50529E-16	
t Critical one-tail	1.645439226	
P(T<=t) two-tail	3.01057E-16	
t Critical two-tail	1.960875762	
STD	97.31757279	294.4026

Figure 8: Time Spent on Dr. Finder T-test results: NRT/RC vs. Control
NRT/RC VS. Control (0,0)

t-Test: Two-Sample Assuming Unequal Variances

	NRT/RC	Control (0,0)
	<i>time_on_finder_page</i>	<i>on_finder_page</i>
Mean	97.90296892	42.13071
Variance	86713.08645	9422.432
Observations	2156	2193
Hypothesized Mean Difference	0	
df	2611	
t Stat	8.359110497	
P(T<=t) one-tail	5.06773E-17	
t Critical one-tail	1.645437431	
P(T<=t) two-tail	0.000	
t Critical two-tail	1.960872967	
STD	294.40	97.04708

Figure 9: Total Contacts T-test Results: NRT/RC vs. NRT/NRC

t-Test: Two-Sample Assuming Unequal Variances

	NRT/NRC	NRT/RC
	<i>total_contacts</i>	<i>total_contacts</i>
Mean	0.030289532	0.05705
Variance	0.061470727	0.124354
Observations	2245	2156
Hypothesized Mean Difference	0	
df	3853	
t Stat	-2.901578848	
P(T<=t) one-tail	0.001866959	
t Critical one-tail	1.645249199	
P(T<=t) two-tail	0.003733918	
t Critical two-tail	1.960579869	
Standard Deviation	0.247877684	0.352557

- **H2:** Ephemeral push mobile communication with RC and in RT will have a higher engagement rate compared with push mobile communication that has NRC and NRT.

The mean score for the sum of time spent on the provider's finders page (see Figure 11) for the participants who received RT and relevant push mobile communication ($M = 103.52$, $SD = 405$, $N = 2,081$) was significantly higher than the NRT and NRC ephemeral push mobile communication group ($M = 43.063$, $SD = 97.32$, $n = 2,245$) when using a two-sample t -test for unequal variances, $t(2,602) = 6.63$, $p < = 0.000$. In a robustness test, I compared of the sum of time spent on the provider's finders page against the participants who did not receive any push mobile communication. The mean score for time spent on the provider's finders page for the participants receiving RT and relevant ephemeral push mobile communication ($M = 103.52$, $SD = 405$, $n = 2,081$) was higher when compared with the participants who did not receive any ephemeral marketing communication ($M = 42.13$, $SD = 97.04$, $n = 2,193$); there was also a significantly higher engagement rate with the two-sample t -test for unequal variances, $t(2,306) = 6.731$, $p < = 0.000$. Finally, to understand the impact on the business outcomes, I conducted an analysis of the contact rate, which is the unit of monetization for the firm. The mean score for the contact rate for the participants in the NRT and relevant communication group ($M = .059$, $SD = .248$, $n = 2,081$) also was significantly higher than the participants who received NRT and irrelevant push mobile communication ($M = .031$, $SD = .44$, $n = 2,245$) in the two-sample t -test for unequal variances, $t(3,204) = -2.604$, $p < = .0093$. As such, the hypothesis is supported.

Figure 10: Time Spent on Dr. Finder T-test results: RT/RC vs. NRT/NRC**RT/RC vs. NRT, NRC**

t-Test: Two-Sample Assuming Unequal Variances

	RT/RC	NRT/NRC
	<i>time_on_finder_page</i>	<i>me_on_finder_page</i>
Mean	103.525	43.06302
Variance	164187.316	9474.93043
Observations	2081.000	2245.00000
Hypothesized Mean Difference	0.000	
df	2302.000	
t Stat	6.632	
P(T<=t) one-tail	0.000	
t Critical one-tail	1.646	
P(T<=t) two-tail	0.000	
t Critical two-tail	1.961	
STD	405.103	97.31757

Figure 11: Time spent on Dr. Finder T-test results: RT/RC vs. Control**RT/RC vs. CONTROL (NRT, NRT, Control)**

t-Test: Two-Sample Assuming Unequal Variances

	CONTROL (NRT, NRT, C	RT/RC
	<i>time_on_finder_page</i>	<i>me_on_finder_page</i>
Mean	43.7244578	103.5245416
Variance	9739.568937	164187.3155
Observations	4491	2081
Hypothesized Mean Difference	0	
df	2195	
t Stat	-6.641708933	
P(T<=t) one-tail	1.94843E-11	
t Critical one-tail	1.645548122	
P(T<=t) two-tail	3.89687E-11	
t Critical two-tail	1.961045332	
STD	405.1029712	97.04707729

Figure 12: Total contact T-test Results: RT/RC vs. NRT/RC**RT/RC vs. NRT/NRC**

t-Test: Two-Sample Assuming Unequal Variances

	NRT/NRC	RT/RC
	<i>total_contacts</i>	<i>total_contacts</i>
Mean	0.030289532	0.059106199
Variance	0.061470727	0.197947085
Observations	2245	2081
Hypothesized Mean Difference	0	
df	3204	
t Stat	-2.60358409	
P(T<=t) one-tail	0.004634017	
t Critical one-tail	1.645329349	
P(T<=t) two-tail	0.00927	
t Critical two-tail	1.960704669	
STD	0.444805535	0.247877684

- **H3:** Ephemeral push mobile communication with RC and in RT will have a higher engagement rate compared with ephemeral mobile communication that has NRC and is in RT.

The mean scores for total time spent on the finders page for participants in the RT and RC group ($M = 103.52$, $SD = 405$, $n = 2,081$) compared with the participants in the RT and NRC group ($M = 93.27$, $SD = 279.34$, $n = 2,150$) were not significant in the two-sample t -test for unequal variances, $t(3,681) = -.955$, $p > .05$. However, when comparing the mean scores for total time on the application for the participants in the RT and RC communication group ($M = 4,332$, $SD = 9,112$, $n = 2,081$) with the participants in the NRC and RT communication group ($M = 3,776$, $SD = 7,658$, $n = 2,150$), there was a significantly higher engagement rate for total time spent on the application when analyzed with a two-sample t -test for unequal variances, $t(4,060) = -2.15$. Finally, when analyzing the contact rate for participants in the RT and RC communication group ($M = .0591$, $SD = .445$, $n = 2,081$) and the participants in the RT and NRC communication group ($M = .047$, $SD = .328$, $n = 2,150$), the results were not significant in the two-sample t -test

for unequal variances, $t(3,820) = -.968$. The results indicate that although total time spent and contact rate were not significant, RT and RC communication resulted in an overall increase in total time spent on the application. This evidence partially supports Hypothesis 3.

Figure 13: Time spent on Dr. Finder T-test Results: RT/RC vs. NRT/RC

RT/RC vs. NRT/RC

t-Test: Two-Sample Assuming Unequal Variances

	RT/RC	NRT/RC
	<i>time_on_finder_page</i>	<i>me_on_finder_page</i>
Mean	103.5245416	97.90
Variance	164187.3155	86713.09
Observations	2081	2156
Hypothesized Mean Difference	0	
df	3790	
t Stat	0.515	
P(T<=t) one-tail	0.303	
t Critical one-tail	1.645	
P(T<=t) two-tail	0.607	
t Critical two-tail	1.961	
STD	405.103	294.403

Figure 14: Total Time spent on Site T-test Results: RT/RC vs. NRT/RC

RT/RC vs. NRT/RC

t-Test: Two-Sample Assuming Unequal Variances

	NRT/RC	RT/RC
	<i>total_time_on_site_seconds</i>	<i>total_time_on_site_seconds</i>
Mean	3984.631262	4332.84
Variance	71636862.4	83085599.59
Observations	2156	2081
Hypothesized Mean Difference	0	
df	4185	
t Stat	-1.287	
P(T<=t) one-tail	0.099	
t Critical one-tail	1.645	
P(T<=t) two-tail	0.198	
t Critical two-tail	1.961	
STD	8461.893	9112.940

Figure 15: Total Contacts T-test Results: RT/RC vs. NRT/RC**RT/RC VS. NRT/RC**

t-Test: Two-Sample Assuming Unequal Variances

	NRT/RC	RT/RC
<i>total_contacts</i>		<i>total_contacts</i>
Mean	0.057050093	0.059
Variance	0.124353985	0.198
Observations	2156	2081
Hypothesized	0	
df	3961	
t Stat	-0.166335499	
P(T<=t) one-t	0.43395071	
t Critical one-	1.645238411	
P(T<=t) two-t	0.867901421	
t Critical two-	1.960563072	
STD	0.353	0.445

- **H4:** Ephemeral push mobile communication with RC and in RT will have a higher engagement rate compared with ephemeral mobile communication that has RC but NRT.

The mean scores for the total time spent on the finders page for participants in the RT and RC group ($M = 103.52$, $SD = 405$, $n = 2,081$) compared with the participants receiving NRT and NRC ephemeral push mobile communication ($M = 97.90$, $SD = 294$, $n = 2,156$) were not significant in the two-sample t -test for unequal variances, $t(3,790) = .52$, $p > .05$. When comparing the mean score for total time spent on the site for the participants in the RT and RC communication group ($M = 4,332$, $SD = 9,112$, $n = 2,081$) to the participants receiving NRT and NRC ephemeral push mobile communication ($M = 3,984$, $SD = 8,461$, $n = 2,156$), the results were not significant according to the two-sample t -test for unequal variances, $t(4,185) = -2.87$. Finally, when analyzing the contact rate for the participants in the RT and RC ephemeral push mobile communication group ($M = .0591$, $SD = .45$, $n = 2,081$) compared with the participants in the NRT and NRC ephemeral push mobile communication group ($M = .057$, $SD = .35$, $n =$

2,156), the results were not significant as well per the two-sample T-test for unequal variances, $t(3,961) = -.17$. Therefore, Hypothesis 4 is not supported.

Figure 16: Time spent on Dr. Finder T-test Results: RT/RC vs. NRT/RC

RT/RC vs. NRT/RC

t-Test: Two-Sample Assuming Unequal Variances

	RT/RC	NRT/RC
	time_on_finder_page	time_on_finder_page
Mean	103.5245416	97.90296892
Variance	164187.3155	86713.08645
Observations	2081	2156
Hypothesized Mean Difference	0	
df	3790	
t Stat	0.515074047	
P(T<=t) one-tail	0.303265658	
t Critical one-tail	1.645255776	
P(T<=t) two-tail	0.606531316	
t Critical two-tail	1.96059011	
STD	405.1029712	294.4025595

Figure 17: Total time on site T-test Result: RT/RC vs. NRT/RC

RT/RC vs. NRT/RC

t-Test: Two-Sample Assuming Unequal Variances

	NRT/RC	RT/RC
	total_time_on_site_seconds	total_time_on_site_seconds
Mean	3984.631262	4332.84
Variance	71636862.4	83085599.59
Observations	2156	2081
Hypothesized Mean Difference	0	
df	4185	
t Stat	-1.287	
P(T<=t) one-tail	0.099	
t Critical one-tail	1.645	
P(T<=t) two-tail	0.198	
t Critical two-tail	1.961	
STD	8461.893	9112.940

Figure 18: Total Contacts T-test results: RT/RC vs. NRT/RC

RT/RC vs. NRT/RC

t-Test: Two-Sample Assuming Unequal Variances

	NRT/RC	RT/RC
	total_contacts	total_contacts
Mean	0.057050093	0.059
Variance	0.124353985	0.198
Observations	2156	2081
Hypothesized Mean Difference	0	
df	3961	
t Stat	-0.166335499	
P(T<=t) one-tail	0.43395071	
t Critical one-tail	1.645238411	
P(T<=t) two-tail	0.867901421	
t Critical two-tail	1.960563072	
STD	0.353	0.445

V CHAPTER 5: DISCUSSION

The demand for mobile research is growing as the adoption of mobile commerce, marketing, and advertising in the marketplace continues to advance (Hairong & Townsend, 2008). The impact of mobile marketing techniques and strategies has yet to be explored thoroughly in both academia and business. To address this gap, the current literature review revealed gaps in research on mobile marketing. Given the rapid increase in mobile device penetration alongside the continuous upgrading of services provided through the Internet and mobile providers, it is essential that research in the area reflects the relevance of the important mobile aspects of time, space, and audiences. The number of papers published to date on mobile marketing and the limited publication on push notifications confirm one of the crucial gaps within mobile marketing research. This is troubling considering that push notifications have become an active and useful marketing tool that is being utilized more and more. The current paper explored the impact of push notifications to fill in this gap in the marketing literature.

The motivation for the current investigation was to understand the extent of the impact of timing and relevance on consumers' engagement in push mobile marketing. The smartphone, a disruptive technology in the market, has changed the way consumers access content and interact with firms. Firms are spending billions on mobile advertising (McNair, 2018; Zaczekiewicz, 2019) to reach consumers, but consumers are distracted by the sheer number of ads they received and multi device usage (Marvin, 2018). Based on a survey of the mobile marketing literature, researchers have focused on the following areas in mobile marketing: permission-based mobile marketing (Ahanonu et al., 2013; Amin, Amin, & Patel, 2011; Chhateja & Jain, 2014; Godin, 1999; Vlad, 2011; Watson et al., 2013), proximity marketing in mobile marketing (Andrews, Goehring, et al., 2016; Andrews, Luo, et al., 2016; Chhateja & Jain, 2014; Danaher et al., 2015; Fong et al., 2015; Giurea, 2015; Hui et al., 2013; Willems, Brengman, & van de Sanden, 2017),

topicality in mobile marketing (Andrews, 2017b; A. Awad & El-Shishy, 2014; Grewal et al., 2016; Kolsaker & Drakatos, 2009; Lemon Katherine, 2016; Shankar & Balasubramanian, 2009; Varnali, 2014; X. Wang et al., 2014a; Yaniv, 2008), and utility (Asare, Khare, & Walsh, 2014; Calin, 2011; Ström et al., 2014). The literature has shown that the smartphone is the primary content consumption platform for consumers (Taimour Azizuddin, 2014). Firms recognized this shift and have thus put billions in marketing dollars into mobile marketing. Although this trend is encouraging, consumers are tuning out advertising because of the volume of advertisements they receive daily. People are now more distracted than ever before, with an average attention span of less than 8 seconds (Faro & Grimes, 2018). When reviewing the mobile marketing literature, it showed that consumers want control over the content they receive (Watson et al., 2013), including the marketing content they receive on their mobile phones; people find unsolicited communication from firms irritating (Varnali, 2014) and an invasion of privacy (Andrews, Goehring, et al., 2016). People specifically hate SMSs as a medium for mobile marketing communication from firms (Kumar, 2017; Rettie & Brum, 2001).

The current research makes several contributions to practice and the push mobile marketing literature. First, I will discuss the practical contributions, followed by the contribution to the literature. I designed and conducted the study with a practical foundation. I utilized a collaboration-engaged scholarship approach, which is best suited for driving real practical contributions for firms (Mathiassen & Nielsen, 2008; Van de Ven, 2007). The lack of empirical evidence for push mobile and RT mobile communication in the literature to guide practical application is concerning and cannot be overlooked because firms are spending billions on mobile marketing, and this trend is expected to last for the foreseeable future (McNair, 2018; Zaczekiewicz, 2019). Specifically regarding push mobile marketing, over 25% of firms are

allocating resources to push mobile marketing (Clor-Proell et al., 2018), and it is pertinent that they understand the factors that influence consumers' engagement rate through this medium in mobile marketing. Also, with the IoT phenomenon on the horizon and mobile phone being the centerpiece of this phenomenon (Allen, 2016; Balaji & Roy, 2017; Miorandi et al., 2012), it is more important that firms understand the critical factors that influence consumers' engagement with mobile communication.

I conducted the present study in a real business setting with real mobile users; as such, the results have real and practical implications. I explored four hypotheses to answer the research question: To what extent does timing and message relevance impact consumer engagement rate in push mobile communication? The findings of this study were successful in answering the research question. The data indicate that effective push mobile communication to consumers should occur at the right moment. Firms need to be present and engage their customers with a push when they are present. Being present means the communication should occur in real time and that the content should be relevant to the consumer. Sending a push communication that is not timely and not relevant will be detrimental to the brand's reputation because consumers see this as intrusive and disruptive (Ahanonu et al., 2013; Samanta et al., 2009). Mobile consumers are highly liquid, and a heightened pressure for personalized and opt-in mobile communication can scare them off (Bardhi & Eckhardt, 2017); the current study contributes to practice by providing a framework that is empirically proven to orchestrate a mobile marketing strategy. In doing so, the study also answered the following question: What is more important in push mobile marketing, timing or topicality? The results empirically showed that timing and topicality are important to consider reaching consumers when they are engaged. The goal of approaching customers is particularly effective when the push mobile communication content is highly

personalized and, in the moment, the consumers are more engaged. People want a guided experience that is timely and is given when they need it. This result is consistent with the liquid consumer behavior theory (Bardhi & Eckhardt, 2017) and, according to the literature, that mobile communication is time sensitive (Andrews, Goehring, et al., 2016; Grewal et al., 2016; Hui et al., 2013). However, topicality is a requirement. Content that is not relevant is just as bad as no communication. Consumers are less engaged when the content is not relevant. Firms can employ a push mobile strategy utilizing the framework developed in the current study. Lastly, the result for the hypothesis 4, which is not supported, suggests that in certain business contexts, content topicality outweighs the timing of the communication. Well-timed and relevant communication, compared to communication that is ill timed, will obtain a higher engagement rate which seems obvious; however, the result in H4 proves otherwise; there is no difference in engagement rate, and relevance outranks the timing of the communication.

The current study makes several contributions to the literature. The survey of the literature shows an urgent need for more contributions in the area of real-time and push mobile marketing. The literature lacks empirical contributions on real-time push mobile marketing. To the best of my knowledge, this is the first study to investigate the combined factors of the timing of mobile marketing communication and topicality. Indeed, the current study contributes to the literature by providing empirical evidence and showing that in push mobile marketing, real-time communication and topicality must be present to achieve a higher consumer engagement rate. The results show that push mobile marketing consumer engagement is higher when the consumer is engaged in the moment. Previous studies have suggested that mobile marketing needs to not only be in the right moment but also be relevant (Andrews, 2017b). However, unlike the findings in prior literature that mobile marketing is time sensitive and the receiver of a mobile marketing

message from a firm requires a lead way to respond to the message (Andrews, Goehring, et al., 2016; Grewal et al., 2016), this study argues that push mobile marketing is different—that is, communication should be occurring in real time. The current investigation confirms that when a person is immersed with an activity on a mobile device, he or she is likely to engage and respond, in this case, to push mobile communication that is relevant (Kivetz & He, 2017). Furthermore, the investigation provides evidence that consumers are looking for a guided experience. Allowing consumers to self-navigate is equivalent to sending the consumer content that is not relevant. The current study extends the findings from the overall mobile marketing literature to the push mobile marketing literature, showing that push mobile marketing is not time sensitive (Andrews, Goehring, et al., 2016; Berman, 2016; Grewal et al., 2016), but instead requires real-time and topical communication (Andrews, 2017b; Andrews, Goehring, et al., 2016; X. Wang et al., 2014a). This is a critical component to drive a higher consumer engagement rate. Finally, this study confirms the theory that being in the moment causes consumers to be engaged, and as such, this is the first study to extend this theory to the push mobile marketing literature.

VI CHAPTER 6: RESEARCH LIMITATIONS AND FUTURE IMPLICATIONS

VI.1 Research Limitations

In undertaking a quantitative exploration, I encountered data collection constraints that limited further investigation that could have provoked a qualitative discourse, which would have provided more depth as to what drives customer engagement rates. Nonetheless, the results concur with previous findings that allude to time and relevance of information playing a major role in mobile marketing success. Mobile marketing is a process exploring timing and message relevance on consumer engagement rate in push mobile communication. Like any research endeavor, the current study encountered some limitations—three in particular: (a) The study findings had no direct linkage to a firm’s financial performance. (b) The study did not capture any customer demographic data. (c) The results are not generalizable to all business contexts. I conducted the research using real mobile users, and although this is a strength of this study, it also had its limitations because of the anonymity arrangement with the participating firm, which restrains me from mentioning its name, as well as disclosing the application users’ personal information. As such, this restricted the collection of data. The omission of demographic information hindered the possibility of a deeper analysis that could lead to a better understanding of consumers’ experiences and responses to real-time information sharing during mobile use. Access to these data could have answered additional questions such as the following: Are there differences in customer engagement rate across age groups? Is there a difference in engagement rate for men versus women? However, the large sample size and the homogeneity of the participants protects against this limitation. Second, the lack of a direct link to the firm’s financial performance was another limitation. The research setting and the data partner are far from the point of transaction. The purchase decision in the study’s business context was highly involved, and the transaction was not immediate. Also, the point of transaction was offline, and

as such, further data collection methodology is required. The last restriction is that the results are not generalizable to all business context. The research setting was an information and consumer research portal, and in this business context, time sensitivity is not a significant factor in the consumer's purchase decision; as such, the results cannot be generalizable to other business contexts, such as retail and e-commerce. Nonetheless, I am confident that I have implemented a sound research design and that the study can be replicated in a retail setting.

VI.2 Future Research Implications

There are several future implications pertaining to the field of real-time and push mobile marketing. First, the contributions from the current study should push researchers to propel the discussion and broaden the scope to further fill this literature gap. Indeed, there is an urgent need for scholars to explore this domain. Firms' growing investments in push mobile marketing call for immediate action.

VII CHAPTER 7: CONCLUSION

The research, which was conducted on application users, can be helpful to firms that use or aim to use push notification techniques to engage customers. However, mobile communication is complex, thus requiring frequent updates on push notification trends and level of acceptance among customers. Also, the literature review revealed a gap in the real-time and push mobile marketing literature. With the rapid acceleration of firm investment in push mobile marketing and consumer expectations for a firm to be present whenever and wherever (Bardhi & Eckhardt, 2017), there is an urgent need to address this gap in the literature. The research sought to answer the following research question: To what extent does timing and message relevance influence consumer engagement rate in push mobile marketing? The results showed that an effective push mobile marketing campaign must be done at the right moment. Specifically, the push must be in real time and must be relevant to the consumer's needs at that moment. Furthermore, the study provided empirical evidence showing that letting consumers self-navigate a firm's mobile application is just as detrimental as sending the consumer nonrelevant content at the wrong moment.

To summarize the study's contributions to both practice and the real-time mobile marketing literature, the practical contribution provides a framework for firms to orchestrate an effective push mobile communication strategy. The study builds on the rich quantitative work that has been undertaken by industry practitioners and researchers but has shifted the focus from mobile marketing acceptance and individuals' emotional connection to their mobile devices to the effect of real-time push notifications with relevant information and the impact on customer engagement rate. The present study contributes to the literature by addressing the empirical gap in the real-time and push mobile marketing literature and increasing information in this area.

REFERENCES

- Ahanonu, K., Biggerstaff, P., Flacuks, A., Hatfield, M., Nahman, M., Seal, K., . . . Yerelian, D. (2013). MOBILE BRAND INTERACTION IN SOUTHEAST ASIA: A COMPARATIVE STUDY. *International Journal of Mobile Marketing*, 8(2), 5-18.
- Allen, R. (2016). marketing applications of the Internet of Things. Retrieved from <https://www.smartinsights.com/managing-digital-marketing/marketing-innovation/7-examples-applications-internet-things-now/>
- Amin, P., Amin, B. Z., & Patel, R. P. (2011). SMS MARKETING: THE ROLE OF PERMISSION AND ACCEPTANCE. *International Journal of Mobile Marketing*, 6(2), 5-16.
- Andrews, M. (2017a). Increasing the Effectiveness of Mobile Advertising by Using Contextual Information. *GfK-Marketing Intelligence Review*, 9(2), 37-41. doi:10.1515/gfkmir-2017-0016
- Andrews, M. (2017b). Increasing the Effectiveness of Mobile Advertising by Using Contextual Information. *GfK Marketing Intelligence Review*, Vol 9, Iss 2, Pp 37-42 (2017)(2), 37. doi:10.1515/gfkmir-2017-0016
- Andrews, M., Goehring, J., Hui, S., Pancras, J., & Thornswood, L. (2016). Mobile Promotions: A Framework and Research Priorities. *Journal of Interactive Marketing*, 34, 15-24. doi:<http://dx.doi.org/10.1016/j.intmar.2016.03.004>
- Andrews, M., Luo, X., Fang, Z., & Ghose, A. (2016). Mobile Ad Effectiveness: Hyper-Contextual Targeting with Crowdedness. *Marketing Science*, 35(2), 218-233. doi:<http://mktsci.journal.informs.org/content/by/year>

- Andrews, M., Xueming, L., Zheng, F., & Ghose, A. (2016). Mobile Ad Effectiveness: Hyper-Contextual Targeting with Crowdedness. *Marketing Science*, 35(2), 218-233.
doi:10.1287/mksc.2015.0905
- Asare, A. K., Khare, A., & Walsh, J. (2014). The Factors That Affect Mobile Advertising Effectiveness in a Real-Time Bidding Environment. *Society for Marketing Advances Proceedings*, 392-392.
- Awad, A., & El-Shishy, A. (2014). Assessing the Effect of Consumers' Profiles and Attitude towards Push Notifications and Future Shopping Intentions. *Global Journal of Emerging Trends in e-Business, Marketing and Consumer Psychology*, 1(2), 58-93.
- Awad, T. A., & El-Shihy, D. A. (2014). Assessing the Effect of Consumers' Attitudes toward Push-Notifications and Shopping Intentions. *International Journal of Marketing Principles & Practices*, 5(1), 22-34.
- Balaji, M. S., & Roy, S. K. (2017). Value co-creation with Internet of things technology in the retail industry. *Journal of Marketing Management*, 33(1/2), 7-31.
doi:10.1080/0267257X.2016.1217914
- Bardhi, F., & Eckhardt, G. M. (2017). Liquid Consumption. *Journal of Consumer Research*.
doi:10.1093/jcr/ucx050
- Barnes, S. J., & Scornavacca, E. (2004). Mobile marketing: the role of permission and acceptance. *International Journal of Mobile Communications*, 2(2), 128.
doi:10.1504/IJMC.2004.004663
- Barwise, P., & Strong, C. (2002). Permission-based mobile advertising. *Journal of Interactive Marketing*, 16(1), 14-24.

- Basheer, A. A.-a., & Ibrahim, A. A. (2010). Mobile marketing: Examining the impact of trust, privacy concern and consumers' attitudes on intention to purchase. *International journal of business and management*, 5(3), 28.
- Berman, B. (2016). Planning and implementing effective mobile marketing programs. *Business Horizons*, 59(4), 431-439. doi:<http://dx.doi.org/10.1016/j.bushor.2016.03.006>
- Borrego, M., Foster, M. J., & Froyd, J. E. (2014). Systematic Literature Reviews in Engineering Education and Other Developing Interdisciplinary Fields. *Journal of Engineering Education*, 103(1), 45-76. doi:doi:10.1002/jee.20038
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of personality and social psychology*, 84(4), 822.
- Calin, G. (2011). WIRELESS ADVERTISING: A STUDY OF MOBILE PHONE USERS. *Annals of the University of Oradea, Economic Science Series*, 20(1), 741-747.
- Carroll, A., & Barnes, S. (2005). Consumers Perceptions and Attitudes towards SMS Mobile Marketing in New. *Focus*, 434-440.
- Chhateja, J., & Jain, V. (2014). Understanding Generation Y and their Perspective on Proximity and Permission based SMS Marketing. *Romanian Journal of Marketing*(4), 2-10.
- Clor-Proell, S., Guggenmos, R., & Rennekamp, K. M. (2018). Mobile Devices and Investment Apps: The Effects of Push Notification, Information Release, and the Fear of Missing Out.
- Danaher, P. J., Smith, M. S., Ranasinghe, K., & Danaher, T. S. (2015). Where, When, and How Long: Factors That Influence the Redemption of Mobile Phone Coupons. *Journal of Marketing Research (JMR)*, 52(5), 710-725. doi:10.1509/jmr.13.0341

- Elliott, C. (2017). Yes, There Are Too Many Ads Online. Yes, You Can Stop Them. Here's How. *Huffington Post*.
- Facebook. (2018). Facebook Reports Fourth Quarter and Full Year 2018 Results.
- Faro, K., & Grimes, M. (2018). ENGAGING CONSUMERS IN THE ERA OF THE EIGHT-SECOND ATTENTION SPAN. *MediaPost*.
- Fong, N. M., Zheng, F., & Xueming, L. U. O. (2015). Geo-Conquesting: Competitive Locational Targeting of Mobile Promotions. *Journal of Marketing Research (JMR)*, 52(5), 726-735. doi:10.1509/jmr.14.0229
- Fortin, D. R., & Dholakia, R. R. (2005). Interactivity and vividness effects on social presence and involvement with a web-based advertisement. *Journal of Business Research*, 58(3), 387-396. doi:[https://doi.org/10.1016/S0148-2963\(03\)00106-1](https://doi.org/10.1016/S0148-2963(03)00106-1)
- Friedrich, R., Gröne, F., Hölbling, K., & Peterson, M. (2009). The March of Mobile Marketing: New Chances for Consumer Companies, New Opportunities for Mobile Operators. *Journal of Advertising Research*, 49(1), 54-61.
- Fulgoni, G. M. (2014). "Omni-Channel" Retail Insights and The Consumer's Path-to-Purchase. *Journal of Advertising Research*, 54(4), 377-380. doi:10.2501/JAR-54-4-377-380
- Gao, L., & Bai, X. (2014). A unified perspective on the factors influencing consumer acceptance of internet of things technology. *Asia Pacific Journal of Marketing and Logistics*, 26(2), 211-231.
- Ghemawat, P. (2001). DistanceStillMatters. *Harvard Business Review*.
- Gibbs, S. (2016). Mobile web browsing overtakes desktop for the first time. *The Guardian*.
- Giurea, A.-M. (2015). Proximity Market, the New Trend Approved by the Consumer's Behavior. *International Journal of Economic Practices & Theories*, 5(5), 462-469.

- Godin, S. (1999). *Permission marketing: Turning strangers into friends and friends into customers*: Simon and Schuster.
- Gokhan Karaatli, J. M., Nichaya Suntornpithug. (2010a). INVESTIGATING MOBILE SERVICES' IMPACT ON CONSUMER SHOPPING EXPERIENCE AND CONSUMER DECISION-MAKING. *International Journal of Mobile Marketing*.
- Gokhan Karaatli, J. M., Nichaya Suntornpithug. (2010b). INVESTIGATING MOBILE SERVICES' IMPACT ON CONSUMER SHOPPING EXPERIENCE AND CONSUMER DECISION-MAKING. *Mobile Marketing Association*.
- Grewal, D., Bart, Y., Spann, M., & Zubcsek, P. P. (2016). Mobile Advertising: A Framework and Research Agenda. *Journal of Interactive Marketing*, 34, 3-14.
doi:10.1016/j.intmar.2016.03.003
- Grewal, D., Roggeveen, A. L., & Nordfält, J. (2017). The Future of Retailing. *Journal of Retailing*, 93(1), 1-6. doi:10.1016/j.jretai.2016.12.008
- Haghirian, P., & Dickinger, A. (2005). Identifying success factors of mobile marketing. *ACR Asia-Pacific Advances*.
- Haines, E. (2008). The dos and donts of Proximity Marketing in Sponsorship. *JOURNAL OF SPONSORSHIP*.
- Hairong, L., & Townsend, L. (2008). MOBILE RESEARCH IN MARKETING: DESIGN AND IMPLEMENTATION ISSUES. *International Journal of Mobile Marketing*, 3(1), 32-40.
- Hanh, T. N., & Hoa, M. Q. (1976). *The miracle of being awake*: Buddhist Publication Society.

- Hui, S. K., Inman, J. J., Yanliu, H., & Suher, J. (2013). The Effect of In-Store Travel Distance on Unplanned Spending: Applications to Mobile Promotion Strategies. *Journal of Marketing*, 77(2), 1-16.
- Jayawardhena, C., Kuckertz, A., Karjaluoto, H., & Kautonen, T. (2009). Antecedents to permission based mobile marketing: an initial examination. *European Journal of Marketing*, 43(3/4), 473-499. doi:doi:10.1108/03090560910935541
- Kabat-Zinn, J. (1990). Full catastrophe living: The program of the stress reduction clinic at the University of Massachusetts Medical Center. In: New York: Delta.
- Kerris, N., & Dowling, S. (2007). Apple reinvents the phone with iPhone. *Apple*, [Online] January, 9.
- Kivetz, R., & He, D. (2017). Being in the Moment: The Effects of Ephemeral Communication in Social Media *Marketing Science Institute*, 17 - 112.
- Knapton, S. (2017). Losing smartphone is almost as stressful as terror threat.
- Kolsaker, A., & Drakatos, N. (2009). Mobile advertising: The influence of emotional attachment to mobile devices on consumer receptiveness. *Journal of Marketing Communications*, 15(4), 267-280. doi:10.1080/13527260802479664
- Kubey, R., Larson, R., & Csikszentmihalyi, M. (1996). Experience sampling method applications to communication research questions. *Journal of communication*, 46(2), 99-120.
- Kumar, G. S. (2017). Mobile Users' Acceptance of SMS Advertising: A Permission Marketing Approach. *Media Watch*, 8(2), 229-246. doi:10.15655/mw/2017/v8i2/49015

- Lemon Katherine, N. (2016). The Art of Creating Attractive Consumer Experiences at the Right Time: Skills Marketers Will Need to Survive and Thrive. *GfK Marketing Intelligence Review*(2), 44. doi:10.1515/gfkmir-2016-0015
- Leys, C., Ley, C., Klein, O., Bernard, P., & Licata, L. (2013). Detecting outliers: Do not use standard deviation around the mean, use absolute deviation around the median. *Journal of Experimental Social Psychology*, 49(4), 764-766.
- Luo, X., Andrews, M., Fang, Z., & Phang, C. W. (2014). Mobile Targeting. *Management Science*, 60(7), 1738-1756. doi:doi:10.1287/mnsc.2013.1836
- Marvin, G. (2013). Multi-Screen Behavior And What It Means For Marketers. *Marketing Land*.
- Marvin, G. (2018). Microsoft Study: Multi-Screen Behavior And What It Means For Marketers. *Marketing Land*.
- Mathiassen, L., & Nielsen, P. A. (2008). Engaged scholarship in IS research. *Scandinavian Journal of Information Systems*, 20(2), 1.
- Matti Leppäniemi, J. S. a. H. K. (2006). A REVIEW OF MOBILE MARKETING RESEARCH. *International Journal of Mobile Marketing*, 1.
- McNair, C. (2018). US Ad Spending Facebook and Google to Capture Over One-Quarter of the Market. *eMarketer*.
- Miorandi, D., Sicari, S., De Pellegrini, F., & Chlamtac, I. (2012). Internet of things: Vision, applications and research challenges. *Ad Hoc Networks*, 10(7), 1497-1516. doi:10.1016/j.adhoc.2012.02.016
- Monk, A., Carroll, J., Parker, S., & Blythe, M. (2004). Why are mobile phones annoying? *Behaviour & Information Technology*, 23(1), 33-41. doi:10.1080/01449290310001638496

- Muk, A. (2007). Consumers' intentions to opt in to SMS advertising. *International Journal of Advertising*, 26(2), 177-198. doi:10.1080/10803548.2007.11073006
- Muk, A. (2008). Cultural influences on adoption of SMS advertising: A study of American and Taiwanese consumers. *Journal of Targeting, Measurement and Analysis for Marketing*, 16(1), 39-47. doi:10.1057/palgrave.jt.5750062
- Pagani, M. (2004). Determinants of adoption of third generation mobile multimedia services. *Journal of Interactive Marketing*, 18, 46-59. doi:10.1002/dir.20011
- Petros, K., Ntina, S., Dimitris, D., Evangelos, M., Gregory, G., & Antonis, H. (2003). Mobile Permission Marketing: Framing the Market Inquiry. *International Journal of Electronic Commerce*, 8(1), 55.
- REID, C. (2014). *Real-Time Marketing Can Keep Businesses Successful-But How?*
- Rettie, R., & Brum, M. (2001). *M-commerce: the role of SMS text messages*. Paper presented at the Fourth Biennial International Conference on Telecommunications and Information Markets (COTIM 2001), Karlsruhe, Germany.
- Richard T. Watson, L. F. P., Pierre Berthon, George M. Zinkhan. (2002). Watson, Richard_U-commerce expanding the universe of marketing.pdf. *Journal of the Academy of Marketing Science*, 30(4), 333-347.
- Rohm, A. J., Gao, T. T., Sultan, F., & Pagani, M. (2012). Marketing in Hypermedia Computer-Mediated Environments_ Conceptual Foundations. *Business Horizons*.
- Rowe, S. D. (2017). How to Succeed at Mobile Marketing - 2017 Best Practices. *CRM Magazine*.
- Salo, J., & Tähtinen., J. (2005). Retailer use of permission-based mobile advertising. *Advances in electronic marketing*, 139-156.

- Sam K. Hui, J. J. I., Yanliu Huang, & Jacob Suher. (March 2013). <The Effect of In-Store Travel Distance on unplanned Spending_Applications to Mobile promotion Strategies.pdf>.
Journal of Marketing, Volume 77(March), 1 - 16.
- Samanta, S. K., Woods, J., & Ghanbari, M. (2009). MMS TO IMPROVE MOBILE ADVERTISING ACCEPTANCE AND REPLACE BILLBOARDS. *International Journal of Mobile Marketing, 4*(2), 61-67.
- Schibrowsky, J. A., Peltier, J. W., & Nill, A. (2007). The state of internet marketing research. *European Journal of Marketing, 41*(7/8), 722-733. doi:10.1108/03090560710752366
- Shankar, V., & Balasubramanian, S. (2009). Mobile Marketing: A Synthesis and Prognosis. *Journal of Interactive Marketing, 23*(2), 118-129.
doi:<http://dx.doi.org/10.1016/j.intmar.2009.02.002>
- Shankar, V., Kleijnen, M., Ramanathan, S., Rizley, R., Holland, S., & Morrissey, S. (2016). Mobile Shopper Marketing: Key Issues, Current Insights, and Future Research Avenues. *Journal of Interactive Marketing, 34*, 37-48.
doi:<http://dx.doi.org/10.1016/j.intmar.2016.03.002>
- Shernoff, D. J., Csikszentmihalyi, M., Schneider, B., & Shernoff, E. S. (2014). Student engagement in high school classrooms from the perspective of flow theory. In *Applications of flow in human development and education* (pp. 475-494): Springer.
- Smith, A. (2012). The best (and worst) of mobile connectivity. *Pew Internet & American Life Project, 30*.
- Smutkupt, P., Krairit, D., & Esichaikul, V. (2010). Mobile marketing: Implications for marketing strategies. *International Journal of Mobile Marketing, 5*(2).

Statista. (2019). Ad blocking user penetration rate in the United States from 2014 to 2020.

Statista.

Ström, R., Vendel, M., & Bredican, J. (2014). Mobile marketing: A literature review on its value for consumers and retailers. *Journal of Retailing and Consumer Services*, 21(6), 1001-1012. doi:<http://dx.doi.org/10.1016/j.jretconser.2013.12.003>

SUHER, H. K., & İSPİR, N. B. (2011). PERMISSION BASED MOBILE MARKETING AND SMS AD AVOIDANCE. *Journal of Yasar University*, 21, 3633-3647.

Swan, M. (2012). Sensor Mania! The Internet of Things, Wearable Computing, Objective Metrics, and the Quantified Self 2.0. *Journal of Sensor and Actuator Networks*, 1(3), 217-253. doi:10.3390/jsan1030217

Taimour Azizuddin, C. M. (2014). Global Mobile Media Consumption Wave 3 Report.

Taylor, A. S., & Harper, R. (2001). *Talking activity: young people and mobile phones*. Paper presented at the CHI 2001 Workshop: Mobile Communications: Understanding Users, Adoption and Design.

Tezinde, T., Smith, B., & Murphy, J. (2002). Getting permission: Exploring factors affecting permission marketing. *Journal of Interactive Marketing*, 16(4), 28-36.

Van de Ven, A. H. (2007). *Engaged scholarship: A guide for organizational and social research*: Oxford University Press on Demand.

Varnali, K. (2014). SMS advertising: How message relevance is linked to the attitude toward the brand? *Journal of Marketing Communications*, 20(5), 339-351.

doi:10.1080/13527266.2012.699457

- Varnali, K., & Toker, A. (2010). Mobile marketing research: The-state-of-the-art. *International Journal of Information Management*, 30(2), 144-151.
doi:10.1016/j.ijinfomgt.2009.08.009
- Vlad, M. (2011). THINKING HUMAN: PERMISSION BASED MOBILE MARKETING CAN HELP LEAD THE WAY. *International Journal of Mobile Marketing*, 6(2), 113-123.
- Wang, R. J.-H., Malthouse, E. C., & Krishnamurthi, L. (2015). On the Go: How Mobile Shopping Affects Customer Purchase Behavior. *Journal of Retailing*, 91(2), 217-234.
doi:10.1016/j.jretai.2015.01.002
- Wang, X., Hong, Z., Xu, Y., Zhang, C., & Ling, H. (2014a). Relevance judgments of mobile commercial information. *Journal of the Association for Information Science & Technology*, 65(7), 1335-1348. doi:10.1002/asi.23060
- Wang, X., Hong, Z., Xu, Y. C., Zhang, C., & Ling, H. (2014b). Relevance judgments of mobile commercial information. *Journal of the Association for Information Science and Technology*, 65(7), 1335-1348. doi:10.1002/asi.23060
- Watson, C., McCarthy, J., & Rowley, J. (2013). Consumer attitudes towards mobile marketing in the smart phone era. *International Journal of Information Management*, 33(5), 840-849.
doi:<http://dx.doi.org/10.1016/j.ijinfomgt.2013.06.004>
- Willems, K., Brengman, M., & van de Sanden, S. (2017). In store proximity marketing - experimenting with digital point of sales communication. *International Journal of Retail & Distribution Management*.
- Windham, L., & Orton, K. (2000). *The soul of the new consumer: The attitudes, behaviors, and preferences of e-customers* (Vol. 3): Allworth Press New York.

- Wu, J., Chen, J., & Dou, W. (2016). The Internet of Things and interaction style: the effect of smart interaction on brand attachment. *Journal of Marketing Management*, 33(1-2), 61-75. doi:10.1080/0267257x.2016.1233132
- Xu, Y., & Chen, Z. (2006). Relevance judgment: What do information users consider beyond topicality? *Journal of the American Society for Information Science and Technology*, 57(7), 961-973.
- Yaniv, G. (2008). SOLD ON MOBILE MARKETING: EFFECTIVE WIRELESS CARRIER MOBILE ADVERTISING AND HOW TO MAKE IT EVEN MORE SO. *International Journal of Mobile Marketing*, 3(2), 86-91.
- Yuan, Y., & Zhang, J. J. (2003). Towards an appropriate business model for m-commerce. *Int. J. Mob. Commun.*, 1(1-2), 35-56. doi:10.1504/ijmc.2003.002459
- Zackiewicz, A. (2019). Digital to Garner 55% of Ad Spending. *WWD: Women's Wear Daily*, 37-37.

VITA

Alvin Glay is a digital marketing executive with over a decade of experience crafting and leading data-driven growth marketing strategies. Alvin is passionate about driving measurable results and has married his strong work ethic with a passion for continuing education. His data-driven approach to continuous personal growth was instilled at an early age in his native Liberia and has been critical to his success in America. He is a trailblazer in online marketing, with a passion for leveraging digital technology drive marketing growth for firms. He has expertise in executing marketing strategies across multiple sectors: retail, travel, consumer package goods, education, nonprofit, telecom, consumer electronics, health, fitness, financial services, and beauty and fashion. He has successfully led large initiatives, blending technology, marketing, and analytics to achieve business objectives for major U.S. brands such as Proctor & Gamble, SC Johnson, Carters, and OshKosh B'Gosh.

Alvin holds a DBA in from Georgia State University, an MBA from Mercer University and a BBA in finance from Georgia State. He is currently serving as the Head of growth marketing at Elite Body Sculpture, where he leads the strategic planning and execution of all paid marketing strategies. His career has been built on increasingly complex roles, as he has been tasked with driving performance-based results for notable multinational companies and clients. Alvin specializes in digital e-commerce and lead generation strategies and is also interested in marrying analysis with real-time optimization.

In his free time, he is active in recreational and professional soccer leagues and enjoys traveling with his wife, son, and daughter. The family prefers tropical destinations, such as Jamaica, where Alvin is currently building a vacation home.