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SOCIAL MEDIA: THE IMPACT ON SPIRITUAL FORMATION AMONG

GENERATION Z FRESHMAN COLLEGE STUDENTS

By

SAM NINAN

A doctoral dissertation submitted to the
College of Education
in partial fulfillment of the requirements
for the degree Doctor of Education
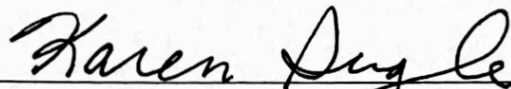in Organizational Leadership

Southeastern University
April, 2021

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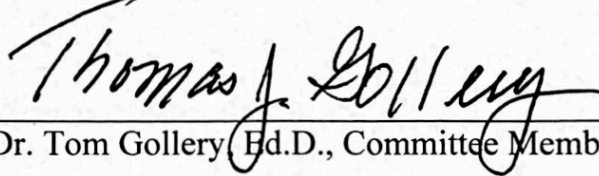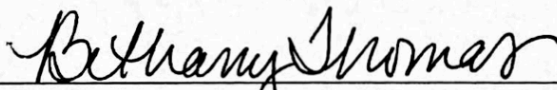by

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DEDICATION

I would like to dedicate my dissertation to two special people. One is my late father-in-law, M. M. Cherian. He passed away (age 93) during the middle of this writing but kept encouraging me all throughout, especially during his later years. He lived in India, and he would offer priceless advice and counsel during my mission trips there and many late-night conversations. He was able to attend my master's degree graduation from Dallas Theological Seminary and wanted to be part of my doctoral graduation. His wisdom, problem-solving abilities, foresight, and integrity are a lasting legacy for me and for the Kingdom of God.

The other person is my mom, Annamma Ninan, who is 88 yrs. old at the time of this writing and a source of inspiration and encouragement. Her passion for Christ and determination to get things done continues to be an example for me to emulate. With boundless energy, prayerful passion, and a gospel focus, she is a true inspiration, ever since the passing of my dad in my twenties. Being a widow for more than 30 years with several health challenges, she has made an impact on her kids, grandchildren, and great grandchildren. We named a charitable organization after her, called Anna's Helping Hands Charities, and those hands have helped many people for generations, from orphans, patients, missionaries, pastors, ladies, and me throughout my life. All glory to God for both of these godly people.

ACKNOWLEDGMENTS

This journey could never have been done without the help and support of dear family and friends, both personally and professionally. I thank my entire family for their support, with special thanks to my wife, Refina (Mary). Her unwavering love, support, and patience through all the years it took to finish, is beyond words, along with all the coffee dates and late-night mint teas. She put up with all my craziness and always pushed me to be my best, and just like the Mary in the Bible, she pondered all things in her heart.

To my committee chair, Dr. Karen Ingle, many thanks for all the encouraging emails, texts, phone calls, and time in the office. As we were in some of the same doctoral classes together, you showed empathy and encouragement throughout the process.

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Thank you, Dr. Sarah Yates, for encouraging me through this process as someone who has gone before me and paved the way, as well as recommending scholarly resources.

To Dr. Cassandra Lopez and Dr. Kelly Hoskins, from the Graduate Writing Service. I greatly appreciate your tireless efforts of editing, revising and encouragement through all the APA requirements.

To Dr. Bethany Thomas, the third reader, thank you for encouraging me to build on your research regarding spiritual formation among college students and showing me the path to completion.

Abstract

The purpose of this study was to understand the impact of social media on the spiritual formation of Generation Z freshmen college students. Social media app usage has become prevalent within society, and Gen Z members are the first to grow up their entire lives with Internet access. Christian universities must understand the impact of social media apps on incoming freshman students, as they develop spiritual formation strategies aimed at the college population. In addition, the students' own perceptions of how they are being impacted is important to identify, in order for them to make the necessary changes towards spiritual growth. The data collection instrument used was an online survey, distributed via email to freshmen students. Out of 300 eligible freshmen students, 134 completed the survey. The survey asked questions about spiritual formation activities and social media app usage. Data analysis of the survey is reported in the results portion of this study. The findings of this study were that social media technology has altered the spiritual formation process of Gen Z students at the university, as they are not able to be fully present during spiritual formation activities, with Bible reading, quiet time, and prayer life being significantly impacted by these apps. Additionally, the social media app Instagram was found to have the greatest impact on student spiritual formation, over the three other most popular apps (Facebook, YouTube, Twitter) at the time of this study.

Keywords: social media, Gen Z, spiritual formation, college freshman, Instagram, Facebook, spirituality, apps.

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I. INTRODUCTION

Each generation is classified by how it impacts some aspect of culture. Generation Z (Gen Z) refers to those who were born between the mid-1990s and the early 2000s (1995-2015) and ranges in age from 10 – 24 years old (Appendix A). This group follows the Millennials, generally described by the Pew Research Center (2012) as those between the ages of 24-38 and born between 1980-1994 (Dimock, 2019). It is thought that Gen Z represents about 74 million people, with some estimates ranging as high as 83 million (US Census Bureau, 2015). Members of Gen Z are true digital natives, having grown up with the Internet and exposed to social networks and mobile systems (Francis & Hoefel, 2018), and they have been found to influence culture in significant ways. The purpose of the study is to evaluate the impact of social media on the spiritual formation of Generation Z freshman college students.

The reason for this study of Gen Z behavior is the generation's influence over aspects of current daily life. One study identified four core Gen Z behaviors, which are anchored in one element: the generation's search for truth. The study also found that members of Gen Z value individual expression, avoid labels, mobilize themselves for a variety of causes, believe profoundly in the efficacy of dialogue to solve conflicts and improve the world, and make decisions that relate to institutions in a highly analytical and pragmatic way (Francis & Hoefel, 2018).

This study seeks to quantify, through a convenient sample survey of Gen Z freshman college students, the impact of social media on their spiritual formation.

Background of the Study

Understanding this new generation—from the unique characteristics of their demographics to how they process their worldview within the space of social media—can offer stakeholders meaningful markers to guide the generation's spiritual formation. For Gen Z, their world revolved around social media, because they grew up with it, and the use of social media dominated a good portion of their day. These young adults used their phones an average of five hours a day—roughly one-third of their total waking hours (Andrews et al., 2015). In some studies, smartphone usage by Gen Z had become so pervasive, that it was becoming habitual and automatic in their daily routines (Gregoire, 2015).

Gen Z's usage of social websites and apps, such as Facebook, Twitter, Instagram, and Snapchat, had reached a level that impacted their social and individual life. A recent study found that, while Generation Z was not addicted to smartphones, they considered using smartphones as the most important part of their life (Ozkan & Solmaz, 2015). In Ozkan and Solmaz's study, 70.8% of Generation Z members reported checking their smartphones when beginning and ending each day. Recent challenges of social media have led some retailers to change their relationship with these apps, such as algorithm control of content, paying for newsfeed posts, abusive reviews and comments, security concerns and other factors. Savvy social media users dropped such apps and jumped to others that were perceived to be more secure (Lawler, 2019). One such company, Lush U.K., had decided to forego Instagram and go directly to their customers through email (Lawler, 2019). Gen Z smartphone usage could have affected those firms' profitability and sustainability.

The literature review on this topic addressed the categorization of Generation Z, the unique challenges of Generation Z, the definition and extent of social media impact, and the general domain area of spiritual formation. Additionally, the influence of technology, online connections, societal pressures, and behaviors within the peer group were included. The domain of spiritual formation encompasses the faith journey, including religious views and practices, the influence of church, and personal spiritual disciplines.

Spiritual formation is generally defined as the process and practices of growing and maturing in one's relationship to God by becoming more Christ-like or conformed to the image of Christ in one's daily life, which in turn places less focus on self (Astin & Astin, 2011). The Scripture verses that encapsulate spiritual formation are "but speaking the truth in love, we are to grow up in all aspects into Him who is the head, even Christ" (*Holy Bible*, New American Standard Bible, 1995/2020, Ephesians 4:15), and "But we all, with unveiled face, beholding as in a mirror the glory of the Lord, are being transformed into the same image from glory to glory, just as from the Lord, the Spirit." (2 Corinthians 3:18).

Spiritual formation is a process of submission to an inner work of the Holy Spirit, shaping, molding, and growing in one's thinking, behavior, and feelings (Willard, 2012). Spiritual growth can be partially gained in solitude but is best achieved within a faith community, with the guidance and counsel of spiritually mature mentors and leaders. The process involves practices of spiritual disciplines, such as prayer, Bible study, devotions, quiet time, involvement in the faith community, worship, and fellowship, so that the Christian develops and matures in such a way that is Christ-like (Astin & Astin, 2011). To contextualize spiritual formation in the world of the Gen Z college student, a broader, bolder definition was presented by Dallas Willard (2012). Willard (2012) stated that spiritual formation can be defined as those processes through

which people are inwardly transformed in such a way that the personality and deeds of Jesus Christ naturally flow out from them wherever they are. Such a definition fits better into the social media setting that has become an all-encompassing part of the life of Generation Z. Spiritual formation is not limited to religious events or spiritual discussions, referring to a holistic approach to all aspects of a person's life; however, the secular-sacred divide is often used to compartmentalize life's journey.

Social media has made it more difficult for people to talk to each other directly (Lawler, 2019). Such direct interaction presents a challenge for spiritual formation, which is most effective within a community of believers. Accountability is also easier to accomplish within a community with direct social interaction rather than through devices. The assembling together of believers can thus provide for a healthy balance of social media use, while fostering the development of spiritual maturity through those direct interactions and exchanges.

Conceptual Framework/Theoretical Foundation

This study may help teachers, administrators, and spiritual leaders to understand the extent of the impact that social media has had on the spiritual growth of Generation Z students, thereby better equipping these leaders with a framework to positively influence Gen Z students' spiritual formation. The college years are a time of tremendous development and change, especially for freshmen (Astin & Astin, 2011). This study was completed with the prospect of promoting students towards spiritual growth and integration during the time of their lives when they could contribute meaningfully to their future careers and in their communities.

Conceptual Framework

Figure 1

Conceptual framework model
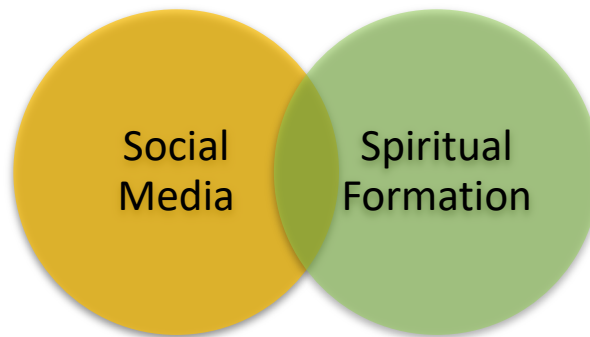
Problem Statement

This study aimed to quantify, through a convenient sample survey of Gen Z freshman college students, the impact of social media on their spiritual formation.

Purpose Statement

The purpose of this quantitative, non-experimental survey was to understand the impact of social media on spiritual formation among Generation Z freshman college students. Members of Gen Z are the first truly native digital generation, exposed to the Internet, social networks, and mobile systems from their earliest days (Francis & Hoefel, 2018). The study encompassed factors that social media affects in relation to spiritual formation, such as spiritual commitment, engagement, struggles, and disciplines. Additional aspects included study habits, time management, inconsistency, motivation, guilt, loss of interest, divided attention, brain chemistry,

scattered loyalties, and similar elements. The research was intended, not only to show how Generation Z behavior is shaped by these social media challenge areas, but also to provide a clearer framework of their actions and a better understanding of how to effectively nurture and promote their spiritual formation.

Overview of Methodology

This study included an anticipated non-probability, convenient sample of 134 students, who were members of Gen Z. The sample of study participants were selected from the freshman class of a faith-based university located in central Florida.

Instrumentation

The study utilized a researcher-developed survey instrument to secure the perceptions of participants within the identified domain of spiritual formation. The content validity judgment phase of survey instrument construction was conducted using a panel of subject matter experts (SMEs). SME recommendations of essential items within social media formed the basis of survey construction. Instrument validation was conducted using the Cronbach's alpha (α) test statistic after data were collected. The survey instrument utilized a 5-point Likert scale, with 1 representing *strongly disagree* and 5 representing *strongly agree*.

Research Questions

This study addressed the following five research questions:

1. To what degree do study participants perceive the use of social media apps as exerting a positive influence upon personal spiritual formation?

   Statistical Techniques: % Level of Agreement; Mean; SD; One Sample t test; Cohen's d

2. To what degree do study participants perceive they have attained a proper balance between social media app usage and my commitment to spiritual formation?

   Statistical Techniques: % Level of Agreement; Mean; SD; One Sample t test; Cohen's d

3. Considering the prominent technology applications of You Tube, Facebook, Instagram, and Twitter, which is most associated with and predictive of study participant perception of contributing to positive spiritual formation?

   Statistical Technique: Pearson product-moment correlation coefficient (r)

4. To what degree do study participants perceive social media apps as inhibiting them from being fully present and engaged in activities that nurture spiritual formation?

   Statistical Techniques: % Level of Agreement; Mean; SD; One Sample t test; Cohen's d

5. Considering study participant time for Bible reading, quiet time with God, prayer life, and spiritual character, which has been most enhanced by time spent on social media?

   Statistical Techniques: % Level of Agreement; Mean; SD; One Sample t test; Cohen's *d*

The sample of the survey items employed within the study's research instrument is found in Appendix B.

Research Hypotheses

The following were the alternative hypotheses for this study:

H_a^1: There is a negative relationship between students' time using social media and the formation of their spiritual life.

H_a^2: Students overcommitted to social media will have lower levels of commitment to their spiritual formation.

H_a3: There is a positive relationship between students that limit and balance their time on social media and progress in their spiritual formation.

Overview of Analyses

A combination of descriptive, inferential, associative, and predictive statistical techniques was employed to analyze the study's formally stated research questions. The analysis showed the significance of social media on the spiritual formation behavior of Gen Z. Alternatively, it also demonstrated the lack of significance of social media on the spiritual formation behavior of Gen Z.

Limitations

A limitation of the study could be that the convenience sample was drawn from the freshman class of one faith-based university in the Central Florida area. Although this freshmen class in Florida included a diverse freshman student body, it is still not a representative demographic of the entire United States for which a wider sample would be needed. A wider scope would require significantly more resources and time for a future study.

Definition of Key Terms

The following words and phrases are key terms for the study.

- **Generation Z**: Gen Z is defined as those who have been born between the mid-1990s and the early 2000s (1995-2015), ranging in age from 4 – 24 years old (Fry, 2018).

- **spiritual formation**: Spiritual formation is generally defined as the process and practices of growing and maturing in one's relationship to God by becoming more Christ-like or conformed to the image of Christ in their life (Willard, 2012).

- **social media**: In the broadest sense, social media is defined as web-based sites that allow people to interact with each other. Media devices can include a computer, electronic, or

mobile-based technology that facilitate easy sharing of ideas, thoughts, and information through virtual networks and communities (Dollarhide, 2019). The most commonly used sites, as of this writing, were Facebook, YouTube, WhatsApp, WeChat, Instagram, Twitter, and Snapchat, among others (Appendix C). Social media is a powerful medium, allowing anyone on earth to connect and share with each other. It was estimated that nearly 4 billion social media users existed at the time of this writing, with the platforms and apps continually growing and evolving (Dean, 2020).

Significance

Generation Z will be the influencers and decision makers for the foreseeable future; therefore, the opportunity to impact their spiritual life can affect an entire generation. The practices and beliefs that are developed in the college years usually shape the rest of the student's life, making spiritual formation equally as important as academic success (Astin & Astin, 2011). This study examined the relationship between social media and spiritual formation, with the research addressing the positive and negative effects of social media on the spiritual formation of the identified population. The study can be beneficial to the teachers and administrators who will influence Generation Z during their college years, pouring into their spiritual growth and development, and planting seeds that will produce solid character qualities and spiritually mature citizens long after the college years. Careers change, but the development of godliness "holds promise for the present life and also for the life to come" (*Holy Bible,* New American Standard Bible 1995/2020, 1 Timothy 4:8). The results may lead to improved communication between the generations, especially between educators and students. The analysis can lead to cultivating an improved level of spiritual growth within students, which could affect the communities they lead, serve, and influence in the decades ahead.

II. REVIEW OF LITERATURE

The purpose of this quantitative, non-experimental survey was to understand the impact of social media on spiritual formation among Generation Z freshman college students.

Overview of the Chapter

Each generation is classified by how it impacts some aspect of the culture. Generation Z refers to those who were born between the mid-1990s and the early 2000s (1995-2015) and range in age from 4–24 years old (Appendix A). This group follows the millennials, generally described by the Pew Research Center as those between the ages of 24-38 and born between 1980-1994 (Dimock, 2019). The estimate is that Gen Z represented about 74 million people, with estimates as high as 83 million (US Census Bureau, 2015). Members of Gen Z are true digital natives, having grown up with the Internet and exposed to social networks and mobile systems (Francis & Hoefel, 2018). They will influence the culture in significant ways.

The reason for this study of Gen Z behavior was the generation's influence over aspects of current daily life. The McKinsey study identified four core Gen Z behaviors, which were anchored in one element: the generation's search for truth (Francis & Hoefel, 2018). The study also found that members of Gen Z value individual expression, avoid labels, mobilize themselves for a variety of causes, believe profoundly in the efficacy of dialogue to solve conflicts and improve the world, and make decisions that relate to institutions in a highly analytical and pragmatic way (Francis & Hoefel, 2018).

The literature review on this topic addressed the following: defining spiritual formation social media and Generation Z, the importance of connectedness in college, spiritual formation in college students, unique challenges of Generation Z, and the impact of social media. Additionally, the influence of technology, online connections, societal pressures, and behaviors within the peer group is included in the discussion. The domain of spiritual formation encompasses the faith journey, including religious views and practices, the influence of church, and personal spiritual disciplines.

Spiritual Formation Defined

Spiritual formation is generally defined as the process and practices of growing and maturing in one's relationship to God by allowing a person to become more Christ-like or conformed to the image of Christ in their life (Willard, 2012). Spiritual formation refers to the process of an individual looking within and striving to become more Christ-like in their inner being (Willard, 2002), which in turn places less focus on self (Astin & Astin, 2011). Willard (2002) further defined spiritual formation as, "the spirit driven process of forming the inner world of the human self in such a way that it becomes like the inner being of Christ himself" (p. 22). Spiritual formation is a progression, a deeper understanding of who God is and how a person grows in Christ Jesus. Spiritual formation transpires over time and occurs when followers of Christ take on the qualities and characteristics of Christ in every dimension of human personality, actions, and beliefs (Willard, 2013). True spiritual formation requires a balance of knowing the Bible and experiencing God (Kapic, 2014; Willard, 2013).

Spiritual formation is a process of submission to an inner work of the Holy Spirit, from shaping and molding, to growing in a person's thinking, behavior, and feelings (Willard, 2012). Spiritual growth can be partially gained in solitude but is best achieved within a faith community

with the guidance and counsel of spiritually mature mentors and leaders. The process involves practices of spiritual disciplines, such as prayer, Bible study, devotions, quiet time, involvement in the faith community, and worship and fellowship, so that the Christian develops and matures towards being more Christ-like (Astin & Astin, 2011). To contextualize spiritual formation in the world of the Gen Z college student, a broader, bolder definition was presented by Dallas Willard (2012). He argued that spiritual formation can be defined as those processes through which people are inwardly transformed in such a way that the personality and deeds of Jesus Christ naturally flow out from them wherever they are (Willard, 2012). Such a definition fits better in the social media setting, as that technology had become an all-encompassing part of the life of Generation Z. Spiritual formation is not limited to religious events or spiritual discussions but refers to a holistic approach to all aspects of a person's life, though the secular-sacred divide is often used to compartmentalize life's journey.

Leaders must understand this new generation before guiding their spiritual formation. For Gen Z members, social media was the world they grew up with, and it filled their schedule for a good portion of each day. Researchers can use markers, such as demographics, worldview, and usage time on social media, to better comprehend the world of the Gen Z generation. Any meaningful research into the spiritual life of members of Generation Z would need to address social media as a key part of their daily life. Gen Z young adults used their phones an average of five hours a day—roughly one-third of their total waking hours (Andrews, et al., 2015). Smartphone usage by Gen Z members had become so pervasive, that it had become habitual and automatic in their daily routines (Gregoire, 2015).

Social Media Defined

In the broadest sense, social media is defined as web-based sites that allow people to interact with each other. Social media devices can include computer, electronic, or mobile-based technology that facilitates easy sharing of ideas, thoughts, and information through virtual networks and communities (Dollarhide, 2019). The commonly used social media sites, as of this writing, were Facebook, YouTube, WhatsApp, WeChat, Instagram, Twitter, and SnapChat. Social media is a powerful medium, allowing anyone on earth with access to the Internet, to connect and share with each other, regardless of distance. The estimate from Social Media Overview was that more than 3.8 billion social media users exist as of this writing with the platforms and apps continually evolving (Hootsuite & We are Social, 2019).

The prevalence, influence, and ubiquitous nature of social media on society, especially on education, is impossible to ignore. For example, traditional media, such as newspapers and television, took a decade to reach 50 million users, but it only took Facebook nine months to reach 100 million users (Patel, 2010). Recent observations of Generation Z by the Global Web Index project show that Gen Z had quickly become the Netflix generation (Radcliffe, 2017). Gen Zers watched more online TV than any other demographic, averaging one hour, eleven minutes per day. The study also revealed that the leading reason for social media usage among the 16-24 age group was to fill up spare time (Radcliffe, 2017). In a college atmosphere, spare time on social media can take away from studies and from spiritual formation. Gen Zers lived in permanent connection, in a world without physical barriers and with limitless options (Yadav & Rai, 2017). Learning spaces must adapt to accommodate the lowered attention span of Generation Z. In contrast to the passive, teacher-centered lecture mode, college campuses and classrooms need to be more student-centered and engage students through multiple senses

(Rickes, 2016). As more senses are involved in the learning process, retention is increased, and more neural connections are created in the brain (Prensky, 2001).

Gen Z members were also more "pictorially inclined" (Beltramini & Buckley, 2014, p. 5), in their learning preferences, which led to a change in attention span, decreasing from 12 to 8 seconds. In a study done by Microsoft, the average attention span for Americans in 2013 was found to be about eight seconds, which demonstrates a decrease from 12 seconds in 2000. The average attention span of a goldfish is 9 seconds (Ryssdal, 2014). The Ryssdal (2014) study highlightd the effects of an increasingly digitalized, portable device-oriented lifestyle on the human brain.

Gen Zer's usage of social websites and apps had reached a level that impacted their social and individual life. A recent study found that, although Generation Z were not addicted to smartphones, they considered using smartphones as the most important part of their life (Ozkan & Solmaz, 2015). In Ozkan & Solmaz's (2015) study, 70.8% of Generation Z members reported checking their smartphones when beginning and ending each day. There are challenges of being on social media that have led some retailers to change their relationship with these apps. Examples of the challenges faced by retailers included: algorithm control of content, paying for newsfeed posts, abusive reviews and comments, and security concerns. Savvy social media users delete unsafe apps and install other apps that they perceive to be more secure (Lawler, 2019). For example, Lush U.K. has decided to forego Instagram and go directly to their customers through email (Lawler, 2019). Gen Zers' smartphone usage could affect the profitability and sustainability of retailers.

A study in *Computers in Human Behavior* examined the relationship between college students' use of cell phones and their academic performance, anxiety, and satisfaction with life.

The researchers found a negative relationship between cell phone use and grade point average. A hierarchical regression ($R^2 = .449$) demonstrated that cell phone use was significantly ($p < .001$) and negatively ($\beta = -.164$) related to actual college GPA (Lepp, et al., 2014). The study complemented studies from the Pew Center's Internet and American Life project (Madden et al., 2013), suggesting high frequency cell phone use may be influencing the health and behavior of college students.

Social media has made it more difficult for people to talk to each other directly (Lawler, 2019). Lack of direct interaction presents a challenge for spiritual formation, which is accomplished most effectively within a community of believers. Accountability is also easier to accomplish within a community using direct social interaction, rather than using devices. The assembling together of believers can thus provide for a healthy balance of social media use, while fostering the development of spiritual maturity through those direct interactions and exchanges.

Generation Z Defined

Generation Z is defined as those individuals who were born between the mid-1990s and the early 2000s (1995-2015); ranging in age from 4–24 years old (Fry, 2018). In their study of Gen Z college students, Seemiller & Grace (2016) found this group to be different from millennials. The data were from the book *Generation Z Goes to College* (Seemiller & Grace, 2016). The research also utilized Northeastern University's Innovation Imperative study and the Higher Education Research Institute's Cooperative Institutional Research Program (CIRP) finding, which has a normed sample of more than 150,000 students (Seemiller & Grace, 2016).

First, Gen Z members were found to be more thoughtful and genuinely concerned about the issues facing other people. Secondly, Gen Zers were more open-minded and willing to

consider new perspectives, ways of being, and ideas. Thirdly, the study found Gen Zers to be

more responsible, for which credit was given to their parents for teaching good habits and giving

them assigned chores. Fourthly, Gen Z was found to be a determined generation of hard workers

and problem-solvers. Although Gen Zers consider themselves to be responsible and determined,

they often see their peers as self-focused and irresponsible. Because of this incongruence

between how Gen Zers see themselves and how they perceive their generation as a whole, the

complete picture may lie somewhere in between (Seemiller & Grace, 2016, p.13).

Generation Z is also referred to as post-millennials, iGen, and homelanders (Dimock,

2019), although the most common term, especially in search engines, is Generation Z.

Generation Z is the most culturally diverse and the best educated generation to date (Fry &

Parker, 2018). As part of the Pew Research Center (2012) analysis of Census Bureau data, the

oldest post-millennials enroll in college at a significantly higher rate than millennials were

enrolled at a comparable age (Fry & Parker, 2018). The school and college enrollment

information were derived from the annual school enrollment supplement to the Current

Population Survey (CPS), collected by the Census Bureau. The October CPS is a standard source

for measuring high school dropout rates and college enrollment and is the basis for the bureau's

historical tables on high school completion and college-going (Fry & Parker, 2018).

Generation Z remains the first generation not born into a Christian culture (Barna Group,

2018; White, 2017). Only 4% of Generation Z embraced a biblical worldview (Barna Group,

2018). Furthermore, 14% of Generation Z identified themselves as atheist, while only 7% of

adults identified themselves as atheist (Barna Group, 2018). The online social connection that

Generation Z is exposed to in their lifetime is reflected in the explosion of websites from 1995 to

2017, ranging from 23,000 to more than 1.7 billion (Seemiller & Grace, 2018). Content creation

for these websites has created opportunities for digital social connection among Gen Zers, having social media accounts on many platforms (Radcliffe, 2017).

Importance of Connectedness in College

An important aspect of success in college, especially among incoming freshmen, is the perception of connectedness, or a sense of belonging within the student community. In order to evaluate the factors in achieving this success, a study done in the United Kingdom found a summer bridge program was effective in acclimating students with a sense of belonging to the campus environment once they started their classes. Social support, which can involve technology, can lead to an effective response, which often leads to positive behavioral manifestations that help students feel important, cared for, accepted, and valued (Strayhorn, 2018).

Generation Z is the first generation to spend their entire adolescence with a smartphone (Twenge, 2017). Social media has replaced other activities, leading to Gen Zers spending less time with their friends in person, and increasing levels of anxiety, depression, and loneliness (Twenge, 2019). The college atmosphere, especially for the first-year student, is the ideal place for building in-person connections that supplement the online world. Technology is so deeply rooted in modern society that Gen Z and upcoming generations may expect innovations in learning styles to become the norm to keep them connected on the campus environment (Simões, 2016). Teaching strategies, such as virtual education, hands-on training, interactive lectures, and open spaces for collaboration, are some of the ways to motivate the Gen Z students and keep them connected during the college years (Rickes, 2016).

The apps on mobile media are not only prevalent, but indispensable. Harvard psychology professor Howard Gardner (2013) conducted research on young people using focus groups to

uncover the power and proliferation of apps (Gardner & Davis, 2013). This generation exerted considerable effort to make themselves appear online to be socially desirable and polished. The apps enabled Gen Zers to present shined-up versions of themselves online with a separate identity in real life. Apps give young people the time and tools to craft an attractive identity, as well as an audience to view and respond to it, and to present a packaged digital self for the job market (Gardner & Davis, 2013). Those individuals with smartphones know that there are apps for just about anything a person wants to accomplish. Finding and communicating information about any subject matter has led to wide, broad-based acceptance of social media.

The use of social media apps, such as Twitter, in college classrooms as a pedagogical tool, was outlined by Sherbolm (2010) as CMC (Computer-Mediated Communication). He listed three aspects to facilitate learning: media richness, social presence, and identity and social information processing (Sherbolm, 2010). Apps engage the student with an immediacy between those who are using the app, in order to "elicit responses, extend discussions, connect participants, and foster critical thinking" (Sherbolm, 2010, p. 106).

Spiritual Formation in College Students

Members of Gen Z were the first truly native digital generation, having been exposed to the Internet, social networks, and mobile systems from their earliest days (Francis & Hoefel, 2018). Generation Z members will be the influencers and decision makers for the foreseeable future; therefore, the opportunity for educators to impact their spiritual life can affect an entire generation. The practices and beliefs that individuals develop during the college years shape the rest of a student's life, making spiritual formation equally as important as academic success (Astin & Astin, 2011). This study can be beneficial to the teachers and administrators who influence Generation Z members during their college years by investing in their spiritual growth

and development. Teachers plant seeds that will produce solid character qualities and spiritually mature citizens, remaining long after the college years. As the first truly post-Christian generation, Gen Zers' defining mark was spiritual illiteracy (White, 2017). In seeking to understand this generation, the author postulateed that the members of Generation Z did not demonstrate a knowledge of the Bible, the gospel, or Christian theology, neither did they understand the cross, and what true worship encompassed. Without a framework of faith, Gen Zers experienced spiritual emptiness, characterized by a lack of a transcendent meaning or purpose in life (White, 2017).

According to Kinnaman (2011) and Twenge (2017), Generation Zers questioned the authenticity and relevance of the Bible, and they found viewing the church as important or relevant difficult, because they are impacted by the postmodern worldview that was transmitted through their smartphones. Because Gen Zers were exposed to so much information through technology, the onslaught of media influenced the direction of Gen Zers' belief in absolute truth (Elofson, 2014). College administrators and faculty may be challenged to categorize Gen Z students as part of the *Nones* (Pew Research Center, 2012, p. 6), which are people who do not identify with any particular religion. The *Nones* prefer nondenominational space for reflecting, praying, and meditating, which can help them connect with other students. Open spaces without any overt religious iconography, access to water and sinks for ablution rituals prior to prayer, and uplifting and accessible spaces were some of the identified ways that Gen Zers could engage and connect with others on the faith journey (Pew, 2012).

Barna and Kinnaman (2014) proposed that Generation Z was the least likely generation to believe in and experience God because of the beliefs of their millennial parents (Barna & Kinnaman, 2014; Brown, 2016; Kinnaman, 2011). Twenge (2017) reported that Generation Z

was more likely than previous generations to be raised by religiously unaffiliated parents. Parents have influence on the next generation, and spiritual formation in a campus environment is affected by the spiritual training and atmosphere in the home. Spiritual formation involves, not only a belief in God, but also a personal relationship with God, which involves the changing of the whole person to become more like Christ (Kapic, 2014; Willard, 2013). Individuals can believe in the existence of God, yet lack a personal relationship with God (Kapic, 2014). To experience God personally and to develop spiritually, a person must come to a point of a genuine conversion experience (Willard, 2013). The most widely used technology applications of YouTube, Facebook, Instagram, and Twitter are most often associated with and predictive of study participant perception of contributing to positive spiritual formation (Clement, 2019).

Impact of Social Media on College Students

Social media is not only attractive, but it also provides college students another avenue to make friends and to relieve the pressure of academics, grades, and study time. Because social media can be a distraction, grades can be impacted, as posts and responses are done mostly during study time (Wang & Liang, 2011). Another way that social media impacts college students is the pressure and anxiety they feel related to missing out. Reflecting this anxiety are terms for new pathologies, such as "nomophobia" (no-mobile-phobia) and "fomo" (fear of missing out) (Taneja, 2014). Both of these terms are associated with the fear of being without a cell phone, being disconnected, or off the Internet. Other terms include "textaphrenia" and "ringxiety," or the false sensation of having received a text message or call that leads to constantly checking the device, and "textiety," the anxiety of receiving and responding immediately to text messages (Taneja, 2014).

Impulsivity, sensation seeking, boredom, and thrill seeking are predictors of excessive use of cell phones (Leung, 2008). Researchers studied problematic smartphone usage as a psychiatric problem and found an inverse relationship between mental health, healthy habits, and cell-phone addiction (De-Sola Gutiérrez et al., 2016). The De-Sola Gutiérrez et al. (2016) study also indicated comorbidities that included sleep affectations, anxiety, stress, and consumption of substances, such as alcohol or tobacco. Social media usage has also been found to reflect a tendency for evasion, social phobia, shyness, introversion, and low levels of self-esteem and self-sufficiency (Garcia del Castillo et al., 2008). The results of the De-Sola Gutierrez (2016) study showed a significant relationship between excessive mobile phone use and mental health of the students ($p = 0.001$). Another study identified the relationship of excessive mobile phone use and mental health among university students (Tavalkolizadeh, Atarodi, & Ahmadpour, 2014). Significant relationships were found between the prevalence of excessive mobile phone use and mental health status in general ($p < 0.05$), and somatization ($p < 0.05$), anxiety, and depression specifically ($p < 0.05$), but no significant relation was found between excessive mobile phone use and social dysfunction ($p < 0.05$), or sex, age, marital status, settlement, and academic achievement (Tavakolizadeh et al., 2014). The conclusion was that acceptable social relationships were better than dependency on mobile phones to combat the negative effects of excessive mobile phone use. Excessive use of mobile phones was primarily connected to the use of social media, and thus one solution is to see that social relationships outside of the mobile phone are developed.

Mindset and perspective have also been found to predict users' well-being (Denworth, 2019). Although heavy use of cell phones is associated with potentially harmful effects on well-being, the age and mental health status of the user of smartphones is also a factor. In a study of

10,557 Facebook users whose Facebook data were examined for three months prior to filling out a questionnaire, Burke and Kraut (2016) found that active Facebook use did not influence well-being, only direct communication with close friends and family was linked to positive results. Users derive benefits from online communication if it comes from people they care about, and the messages are personal. Social media is not necessarily the culprit, but rather its usage and the user's mindset.

The need for a balance in interpersonal relationships and social media was highlighted in Steers et al., (2014) study, in which surveys of college students showed a correlation between reading others' stories in social media and ego-deflation, upward social comparison, envy, and subsequent feelings of depression. YouTube and Facebook were two of the social media sites used most by college students, especially during exams, with Facebook used for the 'facilitation of studying' (Le Gall et al., 2020). Facebook appeard to play an important role for students to form and maintain social capital. Three kinds of social capital were studied by Ellison et al. (2007): bridging, bonding, and maintaining. Twenge (2017) had stated that new findings showed that anger expressed over social media was misplaced and not as extreme as previously believed. From a spiritual perspective, Twenge's (2017) research suggested a negative impact on mental health, which could lead to loneliness, anxiety, and depression. The study was broadly praised by parents and criticized by scientists, because, although the research sheds light on the possibility of mental health problems with excessive smartphone usage, the study was correlational and researchers did not also consider the positive indicators of social media usage (Twenge, 2017). The positive indicators of well-being due to social media include eudaemonic happiness (having a sense of meaning), hedonic happiness (joy in the moment), and relationships (Twenge, 2017).

A recent meta-analysis identified both positive and negative components regarding cause and effect of the impact of social media (Orben, 2020). Social media can have negative effects on emotional outcomes (e.g., mood or depression), but also can have a positive effect on social outcomes (e.g., social connectedness). The observation that both negative and positive effects can coexist for several reasons was found in various research studies. Different outcomes were examined, and since human beings are inherently complex, social media is linked in complex ways with other aspects of life (Orben, 2020). This conclusion is based partly on studying several reviews and meta-analyses with conflicting outcomes. One study showed that users who go to Facebook to promote social support and connection indicated lower levels of depressive symptoms (Frost & Rickwood, 2017). Another meta-analysis found that social media use increases social support (Liu et al., 2016). Domahidi's (2018) meta-analysis indicated that online media use increases perceived social resources. Social media provides social capital in the form of friendships online that complement those in the community and college campus. Relationships are enriched, which can lead to better self-esteem and life satisfaction (Ellison et al., 2007). In such an environment, spiritual formation can also be enhanced.

Hancock et al. (2019) and his team found 24 longitudinal studies, the "gold standard," that allowed researchers to compare the relationship between well-being and social media use at two points in time and statistically to assess which variable was driving change in the other. Hancock's et al. (2019) team further found a small but interesting result: those with higher well-being use social media less, which suggested that well-being is driving social media to some degree (Hancock et al., 2019). The research question of the Hancock (2019) study asked whether digital media positively or negatively affected psychological well-being. Digital media included in the Hancock et al. (2019) study were social network sites (SNS), such as Facebook, instant

messaging apps, and other online tools. The meta-analysis screened 201 studies that included

quantitative statistics (correlation and regression coefficients) and used the attenuated correlation

for analyses. Sample sizes ranged from 35 to 1,935 participants, with 70% of the samples having

participants between the ages of 15 and 25. Rather than reaching sweeping conclusions about

digital media being generally good or bad for well-being, this study suggested a more nuanced

view. The conclusion was that digital media enhanced well-being when they facilitate social

interactions with important relationship partners but detract from it when they displace such

interactions (Hancock et al., 2019).

A similar conclusion was reached from another study, indicating that digital media

enhanced well-being when it facilitates social interactions with important relationship partners

(Liu et al., 2019). The authors concluded that the effects of digital media on well-being were

dependent upon the closeness of the relationships maintained and how the media were used (Liu

et al., 2019). The largest effect found in the meta-analysis was the negative correlation between

well-being and SNS content consumption. Texting was also positively correlated with well-being.

The positive benefits of SNS interactions included better psychosocial outcomes and higher

social capital (Ellison et al., 2007).

Social Media Impact on Spiritual Formation

Smartphones and social media use have become ubiquitous and addictive. Asking

Generation Z members to avoid usage in order to improve spiritual formation will not likely have

the intended effect, because addictive behaviors need a sustainable and healthy alternative. Freud

pointed out that trying to suppress a thought only reinforces it (Alter, 2017). Researchers have

found that, through building healthy habits around social media and paying attention to behavior,

smartphone users will gain mastery over their devices and discover the joys beyond the screens

(Alter, 2017). Human beings, as a species, are built for face-to-face, in-the-flesh interactions within small, local communities. In-person interactions have been upended in the past 20 years with digital communication expressed through social media habits (Newport, 2019). Alter (2017) posits that humans function best when a balance exists between togetherness and separateness. Digital minimalism is identified as "a philosophy of technology use in which you focus your online time on a small number of carefully selected and optimized activities that strongly support things you value, and then happily miss out on everything else" (Newport, 2019, p. 28). The core of spiritual formation is having quiet time with God and fellowship time with others of like-minded faith. Both horizontal and vertical relationships are enhanced and needed to provide satisfaction to the soul (Newport, 2019).

A group of pre-teens was studied, using the Diagnostic Analysis of Nonverbal Behavior, or DANVA2, during a weeklong camp where they learned to spend time in nature and leave all technology at home (Alter, 2017). Instead of using emoticons to convey happiness, sadness, or other emotions, the camp participants reflected those emotions on actual faces, making eye and face contact. The campers made an average of fourteen errors across the forty-eight-item test. At the end of the week, the DANVA2 scores for the pre-teens were higher than when they started, with the error rate dropping by 33 percent. The control group, who did not attend the camp, dropped their error rate by only 20 percent. Since the test recorded fewer errors from the camp participants, they were able to read each other's emotions better. The findings of the study were that less screen time and more face-to-face interaction improves social intelligence (Alter, 2017). Improvement of spiritual formation requires time for reflection without people around, as well as response from people in the student's environment. Spiritual formation requires the student to eliminate distractions that do not foster growth, and being content with such exclusion, knowing

there are different priorities deemed more valuable. In college environments, giving priority to the establishing of good relationships are vital and leads to satisfaction during those formative years (Langer et al., 2010). Such relationships can be supplemented with good devotional time, fellowship with encouraging friends, and meaningful spiritual practices. The goal of spiritual formation comes from an inner transformation through a purposeful interaction with the grace of God in Christ (Willard, 2014).

Summary

The literature review addressed the following: defining spiritual formation social media and Generation Z, the importance of connectedness in college, spiritual formation in college students, unique challenges of Generation Z, and the impact of social media. After looking at the rapidly changing landscape of social media, the research showed that smartphone technology may affect the spiritual formation of Generation Z members during their college years. Social media platforms have become so intertwined in daily life that they have been shown to have both negative and positive outcomes for users, which, in this case, were Gen Z freshman college students. Effective ways to ensure spiritual formation within this demographic requires ongoing research, as the medium and applications are rapidly changing. The changes in social media require even more diligence toward developing some of the unchanging values that are offered within intentional spiritual formation efforts on college campuses.

The effective growth of the spiritual dimension requires balancing the usage of the technology to enhance social relationships while understanding and mitigating the excesses of using that same technology as a substitute for real, interpersonal communication with those on campus who are vested in providing the resources for a deepening walk with God. For educators and administrators, understanding the influence of social media on the spiritual formation of

Generation Z freshman college students will affect an entire generation. This study examined the relationship between social media and spiritual formation and addressed the positive and negative relationship of social media on the spiritual formation of the identified population. The results may lead to improved communication between members of different generations. The analysis from this study can also lead to educators cultivating an improved level of spiritual growth within the student, which could influence the communities where Gen Zers lead, serve, and influence in the decades ahead.

III. METHODOLOGY

The purpose of this quantitative, non-experimental survey was to understand the impact of social media on spiritual formation among Generation Z freshman college students. Chapter III comprises a description of the essential design and methodological aspects of the study.

Description of Methodology

The study's construct was addressed using a quantitative, non-experimental research design, and more specifically, a survey research methodology. Five research questions and hypotheses were formally stated in an effort to address the study's topic. The study's sampling process was achieved through a non-probability, convenient/purposive approach. The study's research instrument was researcher-created and validated through the application of a three-phase validation process.

Statistical Power Analysis

Statistical power analyses were conducted in advance of the study using G*Power software (3.1.9.2, Universität Düsseldorf, Germany) to determine the sample size parameters necessary to detect a statistically significant finding with respect to statistical procedures and anticipated study participant response within the five research questions. Statistical power analyses were delimited to anticipated medium and large effects, a power index $(1 - \beta)$ of .80, and probability level of $a = .05$.

Research questions one, two, four, and five featured the use of the one sample *t* test. A sample size range of 12 (anticipated large effect $d = .80$) to 27 (anticipated medium effect $d = .50$) was considered to be sufficient in detecting a statistically significant finding. Research question three featured the application of the Pearson product moment correlation coefficient (*r*) statistical technique. A sample size range of 23 (anticipated large effect $d = .80$) to 67 (anticipated medium effect $d = .50$) was considered to be sufficient in detecting a statistically significant finding.

Participants

The study sample consisted of freshman college students, who represented Generation Z, mostly those born between the mid-1990s and the early 2000s (1995-2015). Many of them had grown up with Internet access, social media, and smartphones and had been influenced by them. The sample consisted of 134 participants, which represented 44.8% of the pool of eligible participants. The pool was a conveniently accessed, purposive sample of incoming freshmen students at a faith-based university in central Florida. Select professors in freshman classes were sent the survey link to distribute to the students in their respective classes. With the restrictions of the Covid-19 pandemic, in-person classes were limited; therefore, the students took the survey outside of the classroom. These freshmen students comprised the sample for this study.

Instrument(s)

The study's research instrument (survey) was researcher-created in the absence of an existing standardized research instrument suitable to address the study's construct. As such, the validation of the research instrument involved three distinct phases. Phase I, the a priori judgment phase, focused upon the establishment of the survey instrument's content validity and was executed through a content analysis of the existing literature associated with elements of

electronic media applications. The subject matter experts' (SMEs) agreed-upon prominent themes associated with electronic media applications were translated into homogeneous response survey items that would represent the study's research instrument. The study's research instrument was a closed-response, Likert-type survey utilizing a 5-point scale (Note Appendix A).

The second phase of the research instrument validation process was conducted through the use of a pilot administration of the study's research instrument. The pilot administration of the research instrument to a randomly selected sample of study participants yielded an internal reliability level that exceeded the $\alpha = .60$ to $\alpha = .70$ levels considered adequate for researcher-created surveying (George & Mallery, 2016) at $\alpha = .73$. Field (2018) noted that, for exploratory studies, novel research, and pilot studies, alpha levels may be deemed adequate for levels as low as .50.

The posteriori phase of research instrument validation was conducted via statistical analysis using Cronbach's alpha (α) once study data were collected. An overall evaluation of alpha was conducted for the data set and deemed very good ($\alpha = .78$) in validating the research instrument's ability to produce data that were appropriate in addressing the study's construct (George & Mallery, 2016).

Procedures

The survey was administered to freshmen students away from the classroom due to restrictions placed on in-person classes because of the Covid-19 pandemic. The survey (see Appendix A) consisted of twelve questions, and the survey link was emailed to students after class. There were no incentives (i.e., gift cards) for taking the survey, but select professors urged the students to take part in this study. Using the Likert scale for all twelve questions, the students

were given the option to select *strongly agree, agree, uncertain, disagree*, or *strongly disagree*. The first five questions related to how specific aspects of spiritual formation that the student perceived to have been impacted by time spent on social media. Those aspects included Bible reading, quiet time with God, prayer life, and character changes. The second set of four questions asked about the students' perception of the impact of the most popular social media apps on their spiritual life, namely YouTube, Facebook, Instagram, and Twitter. The 10th question dealt with the student's perception of being fully present and engaged in spiritual formation activities. The final two questions dealt with the over-arching effects of exerting a positive influence and attaining a proper balance between social media app usage and spiritual formation.

Data Analysis

The study's data were analyzed using descriptive, inferential, and associative statistical techniques. The threshold adopted for a finding considered to be statistically significant was $p \leq .05$. The magnitude of effect within respective research questions was addressed through both *d* and *r* family effect size statistical techniques. Numeric effect size values were interpreted through qualitative descriptors and conventions offered by Sawilowsky (2009).

Preliminary Analysis

Three foundational analyses were conducted in advance of the formal analysis of the five research questions. Evaluations of missing data, internal reliability, and initial descriptive findings were conducted primarily using descriptive statistical techniques. The extent of the study's missing data was evaluated using frequency counts (*n*) and percentages (%). An inconsequential level of missing data was set at 5% or less (Schafer & Graham, 2002). Internal reliability of study participant response to survey items on the research instrument was assessed using the Cronbach's alpha (α) statistical technique. An alpha level of $\alpha = .60$ to .70 was

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considered at the outset of the study to be adequate for study purposes (George & Mallery, 2016). Initial descriptive findings of participant response to survey items on the research instrument was conducted using frequency counts (n), percentages (%), mean scores (M), and standard deviations (SD).

Research Question 1

To what degree does study participants perceive the use of social media apps as exerting a positive influence upon personal spiritual formation?

H_a1: There will be a statistically significant effect for students' time using social media and the formation of their spiritual life.

Research Question 2

To what degree do study participants perceive they have attained a proper balance between social media app usage and their commitment to spiritual formation?

H_a2: There will be a statistically significant effect for student perception of having

achieved a proper balance between social media app usage and their commitment to

spiritual formation.

Research Question 3

Considering the prominent technology applications of YouTube, Facebook, Instagram, and Twitter, which is most associated with study participant perception of contributing to positive spiritual formation?

$H_a 3$: The social media app YouTube will reflect the greatest degree of mathematical relationship with study participant perceptions of contributing to positive spiritual formation.

Research Question 4

To what degree do study participants perceive social media apps as inhibiting them from being fully present and engaged in activities that nurture spiritual formation?

H_a4: There will be a statistically significant effect for student perception of social media apps as inhibiting them from being fully present and engaged in activities that nurture spiritual formation.

Research Question 5

Considering study participant time for Bible reading, quiet time with God, prayer life, and spiritual character, which has been most enhanced by time spent on social media?

H_a5: The spiritual formation element of "Quiet Time with God" will be impacted to the greatest degree by study participant social media app usage.

Research Question 1,2,4,5

In research questions one, two, four and five, the one sample t test was used to assess the statistical significance of study participant response within each of the respective questions. The assumption of normality was assessed using the skew and kurtosis values achieved within each of the four questions. Skew values not exceeding -2.0/+2.0 and kurtosis values not exceeding =7.0/+7.0 were considered as satisfying the assumption of data array normality (Field, 2018; George & Mallery, 2016). The magnitude of effect of study participant response within each of the four research questions was assessed using the Cohen's d statistical technique.

Research Question 3

Research question three was associative in nature, using variables represented at the interval level of measurement. The Pearson product-moment correlation coefficient (r) was used to evaluate the mathematical relationships of the associative comparisons in research question

three. The coefficient (r^2) represents the statistical technique for effect size evaluation of the mathematical relationships featured in research question three.

Summary

This study surveyed a convenient sample of freshmen college students, who were members of Gen Z, in order to ascertain the impact of social media on their spiritual formation. This study used a researcher-developed survey instrument consisting of 12 survey questions and five research questions and hypotheses in an effort to address the study's topic of social media's impact on students' spiritual formation. Preliminary, pilot, and posterior phases of research instrument validation was conducted. The three groups of questions included five questions on the aspects of spiritual formation impacted by social media, four questions on the impact of popular social media apps, and three over-arching questions of perceptions and influences. From these questions, statistically significant responses from study participants were gathered and assessed.

IV. RESULTS

The purpose of the study was to evaluate the impact of social media upon spiritual formation among Generation Z freshman college students. Chapter IV encompasses a formal reporting of the findings of the study. The research design used to address the study's topic and research problem was non-experimental, quantitative. A survey research approach represented the study's methodological approach. Five research questions and hypotheses were posed and analyzed using descriptive, inferential, and associative/predictive statistical techniques. Study data were analyzed using the 27th version of *IBM's Statistical Package for the Social Sciences (SPSS)*.

Methods of Data Collection

Three foundational analyses were conducted in advance of the formal analysis of the study's research questions and hypotheses. Evaluations of missing data and internal reliability represented the primary focus of foundational analyses. Additionally, descriptions of study participant responses to survey items on the research instrument are included in Chapter IV's reporting for illustrative purposes. The study's extent of missing data was evaluated using descriptive statistical techniques. As a result, the study's essential response set data were found to be 99.85% intact, with only two data points missing. The completion rate achieved in the current study far exceeds the 78.6% rate that is customarily achieved in surveying (Fluid Surveys, 2014).

The internal reliability of study participant response to survey items on the study's research instrument was evaluated using the Cronbach's alpha (α) statistical technique. As a result, an alpha level of $\alpha = .78$ was achieved in the study. The internal reliability level achieved in the study was considered approaching a very good level (Field, 2018). Alpha levels of $\alpha \geq .80$ are considered to be very good levels of internal reliability (Hulin, et al., 2001).

Descriptive statistical techniques were used to evaluate study participant response to the survey items on the study's research instrument. Levels of agreement (*strongly agree* and *agree*), mean scores, and standard deviations were achieved for illustrative and comparative purposes. Table 1 contains a summary of the foundational findings achieved using descriptive statistical techniques.

Table 1

Foundational Descriptive Findings: Levels of Agreement, Means and Standard Deviations

Survey Item	*n*	% Agreement	Mean	*SD*
Social media has contributed to my spiritual formation in a positive way.	134	42.5%	3.17	0.97
Time spent on social media apps has enhanced my time for Bible reading.	134	8.2%	2.08	0.93
Time spent on social media apps has positively influenced my quiet time with God.	134	12.7%	2.13	1.00
Time spent on social media apps has exerted a positive impact upon my prayer life.	134	14.9%	2.34	0.87
I have experienced positive changes/differences in my character in the area of spiritual formation due to the influence of social media	134	36.5%	2.93	1.10
The social media app YouTube has impacted my spiritual formation in a positive manner.	134	48.5%	3.34	1.14
The social media app Facebook has facilitated my spiritual formation in a positive manner.	134	10.4%	2.40	0.95
The social media app Instagram has facilitated my spiritual formation in a positive manner.	133	36.5%	2.80	1.18

The social media app Twitter has facilitated my spiritual formation in a positive fashion.	133	5.2%	2.11	0.91
Social media apps have kept me from being fully present and engaged in activities that nurture spiritual formation.	134	73.2%	3.61	1.09

Data Analysis by Research Question

Five research questions and hypotheses were posed to address the study's topic and research problem. The following represents the respective findings associated with each research question and hypothesis, including the statistical techniques used within each.

Research Question 1

To what degree do study participants perceive the use of social media apps as exerting a positive influence upon personal spiritual formation?

Hypothesis

$H_a{}^1$*:* There will be a statistically significant effect for students' time using social media and the formation of their spiritual life.

Analysis

Nearly half (42.5%; $n = 57$) of study participants agreed that social media apps had exerted a positive influence upon their personal spiritual formation. Nearly one-third (30.6%; $n = 41$) stated that they were uncertain if social media apps had exerted a positive influence upon their personal spiritual formation. Using the one sample t test for statistical significance testing purposes, the mean score of 3.17 ($SD = 0.97$) achieved in response to research question one was manifested at a statistically significant level ($t_{(133)} = 2.05$; $p = .04$). Using the Cohen's d statistical technique to assess the magnitude of effect for study participant response to research question one, the response effect was considered small at $d = .18$.

Results

In light of the statistically significant findings for research question one, the alternative hypothesis was retained.

Research Question 2

To what degree do study participants perceive they have attained a proper balance between social media app usage and their commitment to spiritual formation?

Hypothesis

H_a^2: There will be a statistically significant effect for student perception of having achieved a proper balance between social media app usage and their commitment to spiritual formation.

Analysis

Nearly half (44.8%; $n = 60$) of study participants agreed that they had attained a proper balance between social media app usage and their commitment to spiritual formation. Nearly one in four study participants disagreed (38.8%; $n = 52$) with the statement that they had achieved a proper balance between social media app usage and their commitment to personal spiritual formation. Using the one sample t test for statistical significance testing purposes, the mean score of 3.10 ($SD = 1.18$) achieved in response to research question two was manifested at a non-statistically significant level ($t_{(133)} = 0.95$; $p = .34$). Using the Cohen's d statistical technique to assess the magnitude of effect for study participant response to research question two, the response effect was considered trivial at $d = .08$.

Results

In light of the non-statistically significant findings for research question two, the alternative hypothesis was rejected.

Research Question 3

Considering the prominent technology applications of YouTube, Facebook, Instagram, and Twitter, which is most associated with study participant perception of contributing to positive spiritual formation?

Hypothesis

H$_a$ 3: The social media app YouTube will reflect the greatest degree of mathematical relationship with study participant perceptions of contributing to positive spiritual formation.

Analysis

Using the Pearson product-moment correlation coefficient (r) to evaluate the respective mathematical relationships between social media apps and study participant perceptions of the apps having contributed to a positive spiritual formation, the app Instagram exerted the greatest degree of mathematical relationship ($r = .64$; $p < .001$) and effect for the mathematical relationship ($r^2 = 41$), accounting for 41% of the explained variance in study participant perceptions of apps having contributed to a positive spiritual formation.

Table 2 contains a summary of finding for research question two.

Table 2

Mathematical Relationship Comparison

App	n	r
You Tube	132	.32***
Facebook	132	.20**
Instagram	132	.64***
Twitter	132	.15*

*$p = .04$ **$p = .01$ ***$p < .001$

Results

In light of the finding for the social media app of Instagram, the alternative hypothesis for research question three was rejected.

Research Question 4

To what degree do study participants perceive social media apps as inhibiting them from being fully present and engaged in activities that nurture spiritual formation?

Hypothesis

H_a4: There will be a statistically significant effect for student perception of social media apps as inhibiting them from being fully present and engaged in activities that nurture spiritual formation.

Analysis

Nearly three-quarters (73.2%; $n = 98$) of study participants agreed that social media apps were inhibiting them from being fully present and engaged in activities that nurture spiritual formation. Using the one sample t test for statistical significance testing purposes, the mean score of 3.61 ($SD = 1.09$) achieved in response to research question four was manifested at a statistically significant level ($t_{(133)} = 6.50$; $p < .001$). Using the Cohen's d statistical technique to assess the magnitude of effect for study participant response to research question four, the response effect was considered medium at $d = .56$.

Results

In light of the statistically significant finding for study participant perception that social media apps inhibit them from being fully present and engaged in activities that nurture spiritual formation, the alternative hypothesis for research question four was retained.

Research Question 5

Considering study participant time for Bible reading, quiet time with God, prayer life, and spiritual character, which has been most enhanced by time spent on social media?

Hypothesis

H_a [5:] The spiritual formation element of quiet time with God will be impacted to the greatest degree by study participant social media app usage.

Analysis

The one sample *t* test for statistical significance testing purposes in the evaluation of the four elements associated with spiritual formation and their respective impact for overall spiritual formation in light of social media app usage was utilized. Although all four elements were inversely impacted by social media usage, the spiritual formation area of Bible reading (Mean = 2.08; SD = 0.93) reflected the greatest degree of inverse effect (d = -.99), or impact for social media app usage ($t_{(133)}$ = -11.47; $p < .001$). Overall character development was least impacted by social media use ($t_{(133)}$ = -0.79; $p = .43$), with an inverse effect considered trivial (d = .07).

Table 3 contains a summary of finding for the impact exerted upon spiritual formation elements by social media app usage.

Table 3

Social Media Impact Comparison: Elements of Spiritual Formation

Spiritual Formation Area	n	Mean	SD	t	d
Bible Reading	134	2.08	0.93	-11.47***	-.99[a]
Quiet Time with God	134	2.13	1.00	-10.11***	-.87[a]
Prayer Life	134	2.34	0.97	-7.90***	-.68
Character Development	134	2.93	1.10	-0.79	-07

***$p < .001$ [a] Large Effect ($d \geq .80$)

Results

In light of the finding for the spiritual formation element of Bible reading in research question five, the alternative hypothesis was rejected.

Summary

This study surveyed a convenient sample of freshmen college students, who were members of Gen Z, in order to ascertain the impact of social media on their spiritual formation.

From the 12-question survey, consisting of three groups of questions, statistically significant responses were gathered and assessed. In an effort to analyze the study's topic, five research questions and hypotheses were posed and analyzed. The overarching questions were also helpful to gauge the perception of social media impact in the various activities that contribute to spiritual formation. The students may perceive that social media was not affecting their spiritual life, but the data collected indicated otherwise. While most Gen Zers perceived social media as something they could handle, the research questions indicated a non-statistically significant level ($p = .34$) of response to their perception, indicating a proper balance was not achieved with social media. In addition, given the more personal nature of the social media app Instagram, the study reflected the apps' greater effect on these students ($p < .001$) over Facebook or YouTube. Bible reading was impacted more than quiet time with God, and the majority of respondents agreed that the apps were inhibiting them from being fully present and engaged in spiritually nurturing activities. The study revealed the impact of social media apps in specific ways, and unless kept in control or a balance achieved, these apps could be a detriment to the spiritual growth of the student during these formative years of their life.

V. DISCUSSION

The purpose of this quantitative, non-experimental survey was to understand the impact of social media on spiritual formation among Generation Z freshman college students. The landscape of institutions of higher learning in the United States is influenced by many factors as it relates to Generation Z college students. The college years can shape Gen Zers for their campus years, as well as impact the rest of their lives, specifically in the area of spiritual formation. One of the main areas of impact was the effect of social media apps upon the spiritual development of this generation. This generation had grown up with and lived in a social media world, that impacted their daily life.

The intent of this quantitative study was to quantify the impact of social media on spiritual formation during the freshmen college year of Generation Z students. The intent was to quantify the perception of these students as to how the most popular social media apps had impacted their spiritual life. The results were achieved mainly through analyzing the responses to five research questions that addressed the various social media apps, and their impact on aspects of spiritual formation.

The evaluation was conducted through online surveys emailed to freshmen. Most surveys were completed away from the classrooms due to a reduction of in-person classes in light of pandemic-related restrictions. From the 300 eligible freshmen for the survey, 134 responses were received, representing 44.6% participation.

Review of Methodology

Two preliminary analyses were conducted in advance of the addressing the five research questions and related hypotheses. Evaluation of the study's missing data and internal reliability was conducted using descriptive statistical techniques. The level of missing data was minimal, with only .015 % missing (99.85% completion rate), which is considered inconsequential and far exceeds the 78.6% completion rate usually achieved in surveying.

The internal reliability of the study participant response to survey items on the study's research instrument was evaluated using the Cronbach's alpha (α) statistical technique. The response data were analyzed for instrument validation purposes and assessed for internal consistency of student response to the instrument items. As a result, an alpha level of .78 ($p < .001$) was achieved in the study, which is considered to be an adequate to good level for internal reliability. The alpha level that is generally acceptable for researcher-created instruments is $\alpha = .70$ (Salkind, 2017). This level was evident from the consistency of response and also validated the instrument, lending credibility and trustworthiness to the analysis and interpretation of the five research questions.

Summary of Results

The results of the study indicated that Bible reading, quiet time, and prayer life had all been significantly impacted by social media. The study also showed that the social media app Instagram had the most impact on the student's spiritual formation, over the other three apps that were most popular at the time of this writing (Facebook, YouTube, Twitter). Furthermore, the study found that social media apps kept the student from being fully present in activities that nurture spiritual formation.

Discussion by Research Question

Five research questions and hypotheses were posed to address the study's topic and research problem. The following discussion represents the summary of the findings of each question. The implications associated with each research question and the importance of each are also included.

Research Question 1

To what degree do study participants perceive the use of social media apps as exerting a positive influence upon personal spiritual formation?

This question generated a statistically significant response ($t_{(133)} = 2.05$; $p = .04$) as to the positive influence of time using social media apps and the formation of their spiritual life. The response effect was considered small ($d = .18$) in regard to the student's perception of the magnitude of the influence of social media. The literature review did not contradict this finding, which characterizes Gen Z members viewing social media as a positive influence, having grown up with technology all of their lives (Francis & Hoefel, 2018). Social media was not perceived with negative connotations or taken from a defensive posture within the world of Gen Z members (Orben, 2020). Further research questions were posed in an effort to examine the apps and the spiritual formation exercises, but in this first question, there was not an a priori assumption of social media apps being undesirable or detrimental for Gen Z students.

Implications

For Gen Z freshmen college students, social media is pervasive and interwoven into their lives even before they arrive on campus. Thus, an attempt by campus leadership to portray social media apps negatively may not be well received. A better strategy would be to glean from these freshmen students the ways that social media has helped them and allow them to use the apps in a constructive manner. Educators have a challenge to allocate their resources towards a

complementary way with the technology used for social media apps, some of which were identified in the literature review. Limits during class time and spiritual formation events should be considered so as not to take away from the purpose of the event. Purpose statements can be drafted regarding policies towards social media and distributed to freshmen early in the semester, setting expectations and guidelines for social media usage, especially during spiritual formation events.

Research Question 2

To what degree do study participants perceive they have attained a proper balance between social media app usage and my commitment to spiritual formation?

The extent of the response effect was trivial, thus the participants' perceptions of having achieved the proper balance was not statistically significant. Respondents may feel they have handled social media apps properly, within their efforts at spiritual formation. The results indicated that the confidence level may just be an element of feeling invincible rather than supported by the data.

The trivial response effect would appear to be corroborated with the general findings in the literature review, as Generation Z members do not believe that social media apps have made them feel unbalanced in their lives (Gardner & Davis, 2013). Rather, these apps have become such an indispensable part of their daily lives that students perceive that they are keeping it in balance. The attaining of a proper balance was not supported by the research question to a significant degree and lends itself to understand the gap between students' perception and reality.

Implications

The nature of social media apps is such that usage leads to increased usage. The apps are even designed to be used increasingly, drawing the user into those areas that pique their interest

and provide more of the same content. Social media companies do not appear to be interested in helping their users keep a balance but want increased usage for advertising revenue (Qualman, 2012). Increased usage can work counter to spiritual formation, as it can be distracting and disruptive to activities that require quiet, uninterrupted time. Although the study was not designed to delve into the use of algorithms by the social media giants, several studies and documentaries have revealed the techniques used to build addictive behavior by keeping the user engaged in these apps (Petrescu & Krischen, 2020). The student and the educator must acknowledge this reality and find the proper balance, in order to keep spiritual formation as a priority. The challenge of finding that balance also highlights one of the true goals of spiritual formation, that of being genuine in one's walk with the Lord and true to oneself in professed belief and practical behavior.

Research Question 3

Considering the prominent technology applications of YouTube, Facebook, Instagram, and Twitter, which is most associated with and predictive of study participant perception of contributing to positive spiritual formation?

The app Instagram exerted the highest degree of mathematical relationship ($r = .64$, $p < .001$) regarding contributions toward positive spiritual formation. The result was surprising to some degree, because Facebook was the most popular and ubiquitous of the major social media apps, according to literature (Le Gall et al., 2020). The Le Gall (2020) study indicated the quickly changing landscape of social media, as Generation Z members preferred Instagram use over the other three apps in the study. Facebook's overall user base, which tends to be older, has more users in general, but Gen Z members, which are generally younger, have trended towards Instagram. The claim was that YouTube would have the greater mathematical relationship

because of the nature of video streaming over reading text and pictures, but the research showed differently.

Implications

A generational divide seemed to be evident in this research question, as Gen Z members have opted out of Facebook, partly because their parents and grandparents are on Facebook. As of this writing, Instagram and YouTube are owned by Facebook, but they may be broken up into several companies as anti-trust litigation takes hold. Such actions reflect the changing nature of social media among Gen Z members. Facebook was facing many challenges, both in regards to privacy concerns, as well as monopolistic practices. Facebook's declared motto for years was "Move fast and break things" (Vardi, 2020, p. 5). This mindset can have much unintended consequences from undermining democracy to hindering spiritual growth. More regulation and backlash are likely in the future for these technology giants.

Research Question 4

To what degree do study participants perceive social media apps as inhibiting them from being fully present and engaged in activities that nurture spiritual formation?

The findings in research question four support the student perception that social media apps kept them from being fully present and engaged in activities that nurture spiritual formation. A statistically significant level of response ($t_{(133)} = 6.50$; $p < .001$) was achieved in response to this research question with nearly three-quarters agreeing to that perception ($d = .56$). The results indicated a strong response and highlighted one of the main results of this study of the impact of social media apps, namely that apps keep the users in an alternate reality when they should be fully engaged in the nurturing spiritual formation activity. Gen Z students had overwhelmingly recognized and admitted their own breakdown in not being fully present. This

admission is a positive step towards this realization, because only when awareness is made and affirmed can possible solutions be discussed and implemented.

Implications

The nature of social media is distractive and interruptive, requiring and expecting interaction frequently. The notifications are designed to generate responses, giving the user the impetus to act. Frequent interaction works against being fully present in situations, events, venues, gatherings, and groups, which is often required for spiritual formation. Turning off notifications is an effective way to control responses and allow more focus during those situations. The virtual world of social media apps had tremendous influence on students. In the literature review, the term *FOMO*, or fear of missing out, was referenced as a strong pull on smartphone users (Taneja, 2014). The psychological phenomena of feeling left out of what is currently trending on social media is a tremendous motivating factor to keep connected all the time. The inability to put the phone down and focus on more important things is a real challenge for Generation Z. Clear guidelines should be established for spiritual formation events, just as classrooms have enacted to keep smartphone use to a minimum or none at all. Smartphone etiquette guidelines given early in the semester and reinforced periodically through email, text, and website reminders can also be helpful.

Research Question 5

Considering study participant time for Bible reading, quiet time with God, prayer life, and spiritual character, which has been most enhanced by time spent on social media?

The findings achieved in research question 5 would appear to be supportive of the notion that Bible reading was impacted to the greatest degree ($t_{(133)} = -11.47$; $p < .001$) by the students' use of social media apps, with character development impacted the least ($t_{(133)} = -0.79$; $p = .43$).

It was postulated that quiet time with God, or devotions, would be more impacted by social media, but the data showed the impact below Bible reading. Three of the four elements appeared to contribute at a statistically significant level ($p < .001$) overall to spiritual formation, but Bible reading reflected the greatest degree of inverse effect ($d = -.99$).

Implications

Bible reading is already at historic lows, and this research indicated that among Gen Z students, it is greatly impacted by social media app usage. The apps themselves must be more appealing in one sense, but perhaps a reason for this finding is that reading of the text of Scripture is a more basic part of spiritual formation, and social media can often be a distraction. There are favorable apps for Bible reading, such as YouVersion, Bible Gateway, and others, which, if used within spiritual disciplines, can enhance the time for devotions. If the smartphone is used for Bible reading and devotions, there can be a temptation to use other apps, especially if notifications are turned on and lead to distractions. Spiritual formation involves spiritual disciplines, for which there are no real shortcuts, even with social media apps. The time invested in Bible reading, quiet time, and prayer is vital to development in spiritual growth.

Study Limitations

Quantitative studies often are not without limitations that preclude the full impact of the findings. The sample in this study was delimited to one university in Central Florida, which may restrict using the findings for generalizations. Future studies incorporating responses and samples from several universities would be helpful for a more general application of the findings. In addition, the type of student body in this study was delimited to freshmen Generation Z students. Selection of this group of students was by design, but since social media was so pervasive in this time of history, it would be beneficial to expand the population to include the age range from

freshmen to senior university students. Variations of age range could then be observed of the range of spiritual formation impacted by social media from the first year of college to the final year.

Another limitation impacting the study was the conditions brought about by the Covid-19 pandemic. The safety rules enacted due to the pandemic hampered the response from students, because many of the traditional classes met in a hybrid format, which led to in-person class times being replaced with online class times. Meeting in person in a classroom environment generally encourages better participation in surveys. In-classroom completion would have been a more robust way of conducting the survey, which would have been done during or at the end of class, along with the impetus from the professor. Even though the response and completion rates met the standard of statistical analysis (response set data found to be 99.85% intact), the sample size would have been larger if not for the pandemic. The study size reached was about 44% of the expected 300 students from a total freshmen population of 900 students.

Another limitation experienced in conducting the study was the current social media apps (Facebook, Instagram, Twitter, YouTube) that were included in this study. The ever-evolving, fast-paced world of social media has already witnessed changes in trending companies, and more change is expected in the short term (3-5 years). Alternate social media apps may likely take their place and have already begun to do so, as of this writing. These companies have already faced public backlash and push back from governmental oversight committees during election cycles and with pandemic-related concerns, such as lockdowns. In addition, these companies are facing litigation and anti-trust violations from various countries for monopolizing their businesses to the detriment of other smaller businesses. Social media providers also face the risk of hacking, security breaches, service outages, monitoring, advertiser-centered content, and

data sharing with other social media companies. Gen Z members were savvy to the changes and challenges in the social media world, as previously mentioned in the literature review. Gen Z will likely switch and swap around to other media, without any necessity to be loyal to any company, technology, or brand. Being savvy with social media is primarily attributable to having grown up with smartphones and Internet connection all their lives.

These limitations were not perceived to have negatively impacted the validity nor reliability of the study in a consequential manner. Nonetheless they were considered limitations. Future studies can account for these limitations and gain further insight into the subject matter and the population.

Implications for Future Practice

Regarding the impact of social media apps on the spiritual formation of Generation Z freshmen college students, several important implications were gained as a result of the research done in this study.

Generation Z

The Gen Z sample group featured in the study was different from the millennials and previous generations, and thus understanding this generation was of utmost importance. Generation Z will impact societal changes for 30 to 50 years, which in-turn, will open up many avenues of study and research into their behavior, practice, and performance. As the Generation Z population emerges in leadership roles in all realms of society, their spiritual formation will certainly affect decision-making and policy formulation.

Crossroads

Generation Z was the first generation to grow up utilizing technology from a very young age, so they were at the crossroads of the emergence of technology and how it can impede or

improve spiritual formation. Changes to the social media landscape are inevitable and necessary. Adaptability, flexibility, and intentionality will be necessary to navigate these changes in keeping with the larger goals of spiritual formation.

University

For the university, a new challenge was evident, namely that the presence of God may be altered by technology. Social media impact will have implications for spiritual formation departments, with the challenge of keeping students fully present within the scope of the activities that foster spiritual growth and development. A complementary approach is recommended, based on the research and the literature review, rather than an adversarial approach.

Recommendations for Future Research

Based on the results of this social media impact study, including the literature review, several recommendations for future research follow: design future focus groups to study other variables of social media, address a larger population in a similar university, expand the study to secular universities, and conduct a wider Gen Z population survey online.

Social media variables

The social media app world is constantly changing with new apps released daily. Factors, such as expanded sales of smartphones, affordability, and more innovative apps, have allowed the big tech social media companies to expand globally into cultural contexts, in order to connect people and tell their stories. Further research regarding usage, different stages of the college experience, and diversity of student bodies would appear to yield meaningful research.

Larger populations

Increasing the participant pool will likely show interesting trends and wider variety of response themes. Future studies with student bodies of large, metropolitan universities with a commuter population could yield interesting results, both in social media usage, as well as spiritual development or the lack thereof.

Online surveys

Future research can be gleaned through surveys conducted quickly and efficiently, ranging from satisfaction metrics, service improvement scores, rating of apps, and feedback metrics. There is a potential for gathering greater amounts of relevant trending data within the college population to evaluate utilizing data mining and analytics.

Conclusion

In this dissertation study, an evaluation was completed of the pervasiveness of social media in the lives of Generation Z college students, and how that impacts their spiritual lives at the university level. The purpose of the survey was to understand the impact of social media on spiritual formation of incoming freshmen college students. Bible reading, quiet time, and prayer life were significantly impacted by social media. The social media app Instagram had the most impact on the students' spiritual formation, over the other three that were most popular. Social media apps kept the students from being fully present in activities that nurture spiritual formation.

The findings achieved in the study may perhaps provide evidence in support of the contention that social media has not only invaded the spiritual lives of students by keeping them from being fully present during spiritual formation activities, but social media has also created negative impacts on Gen Zs spiritual growth due to personal distractions and time

mismanagement. Harnessing social media technology appropriately in order to intentionally aid and assist the generation towards spiritual formation is the challenge for educators and leaders. Understanding the impact of social media allows educators and students to face the challenges of spiritual formation, knowing that steps taken, both personally and professionally, will provide Gen Z with the possibility to grow deeper in their faith during the college years and allow them to build a strong sense of their walk with God upon graduation. The discipline and prioritization of spiritual formation during those years, in spite of the distractions presented by social media, will serve them well into their future endeavors.

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    research outline. *Global Journal of Enterprise Information System, 9,* 110. doi:

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Appendix A

Categories of generations

Figure 1. Age and year categorization of generations

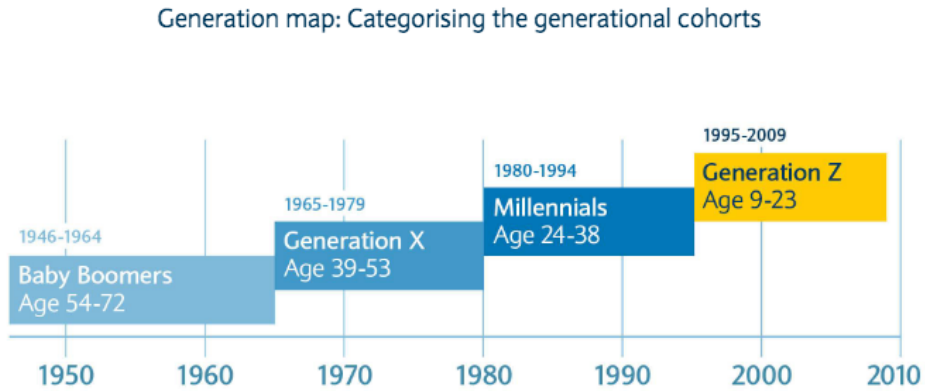Generation map: Categorising the generational cohorts

Figure 1. **Age and year categorization of generations**. Adapted from Patel, H., & Morrison, E.

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Appendix B

Survey Questions – Social Media and Spiritual Formation:

The following represents a sample of the survey items to be employed within the study's research instrument:

1. Social media has contributed to my spiritual formation in a positive way.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

2. Time spent on social media apps has enhanced my time for Bible reading.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

3. Time spent on social media apps has positively influenced my quiet time with God.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

4. Time spent on social media apps has exerted a positive impact upon my prayer life.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

5. I have experienced positive changes/differences in my character in the area of spiritual formation due to the influence of social media.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

6. The social media app YouTube has impacted my spiritual formation in a positive manner.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

7. The social media app Face Book has facilitated my spiritual formation in a positive manner.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

8. The social media app Instagram has facilitated my spiritual formation in a positive manner.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

9. The social media app Twitter has facilitated my spiritual formation in a positive fashion.

    5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

10. Social media apps have kept me from being fully present and engaged in activities that nurture spiritual formation.

   5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

11. Overall, I perceive the use of social media apps as exerting a positive influence upon my personal spiritual formation

   5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

12. Overall, I believe that I have attained a proper balance between social media app usage and my commitment to spiritual formation.

   5- Strongly Agree   4- Agree   3- Uncertain   2- Disagree   1-Strongly Disagree

Impact question:

My inability to maintain a healthy balance with social media hinders me in my spiritual

formation.

Overarching Survey Item:

I feel confident in my ability to commit on a sustained basis to my spiritual formation within the

effects of social media (i.e. a balance between spiritual pursuits and social media)

Most popular social media networks

Figure 2

Most popular social networks worldwide as of January 2021, ranked by number of active users
(in millions)

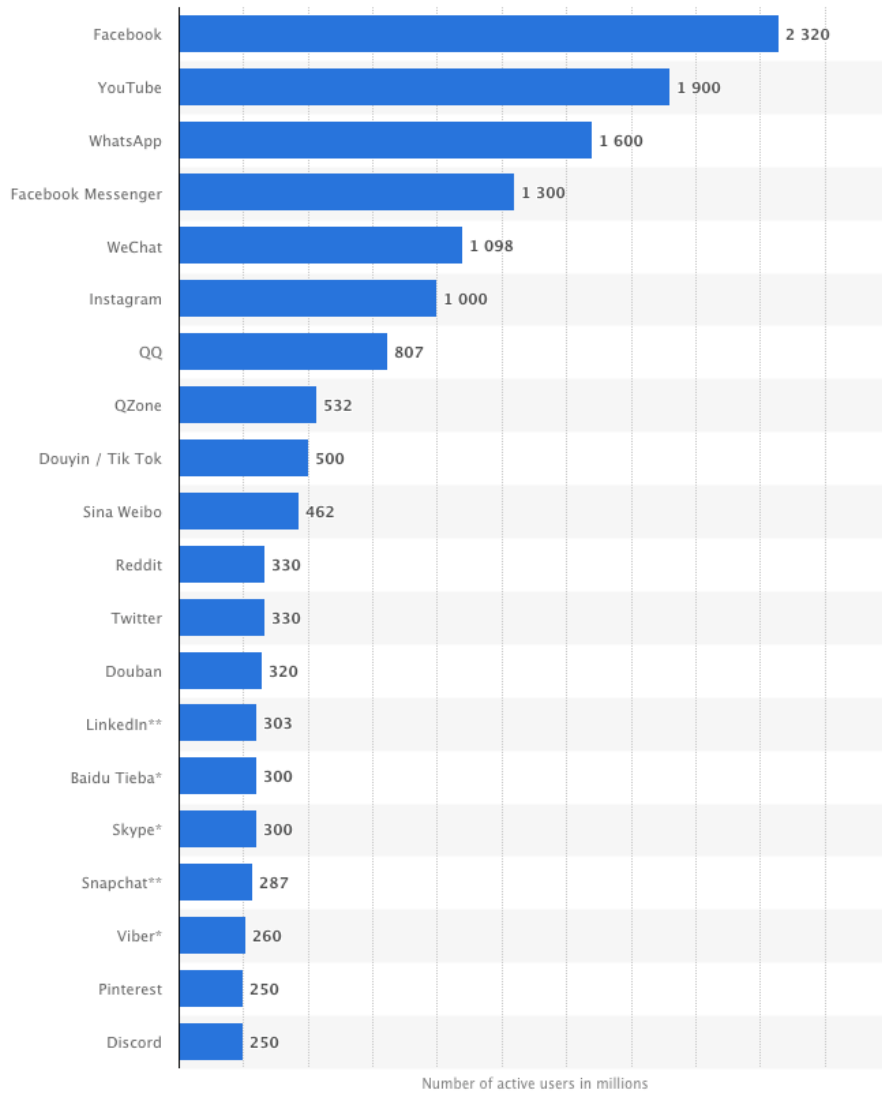| Social Network	Number of active users in millions
Facebook	2 320
YouTube	1 900
WhatsApp	1 600
Facebook Messenger	1 300
WeChat	1 098
Instagram	1 000
QQ	807
QZone	532
Douyin / Tik Tok	500
Sina Weibo	462
Reddit	330
Twitter	330
Douban	320
LinkedIn**	303
Baidu Tieba*	300
Skype*	300
Snapchat**	287
Viber*	260
Pinterest	250
Discord	250

Number of active users in millions

Figure 2. Most popular social networks worldwide as of January 2021, ranked by number of active users (in millions). Retrieved from https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/