

Tracking Spirituality through Digital Applications

Christian self-monitoring of spirituality through digital applications

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ABSTRACT

Many scholars have looked into the usage of self-monitoring applications and its relation to health and well being. However, the field of spirituality was yet almost untouched. This is remarkable, as spirituality has a large part in today's society. Therefore, this research aims to look into the usage and effects of spiritual self-monitoring applications. While there is limited research on the effect of the usage of self-monitoring applications on a user's health, it is deemed significant to look into the effects of Christian applications on perceived spiritual growth and the practice of spiritual disciplines. Technologies of the self, a concept coined by Michel Foucault, and the quantification of the self theory is employed as a theoretical framework for this research. This study has looked at to what extent the frequency of Christian application usage influences the practice of spiritual disciplines, with perceived spiritual growth as a mediator.

Through a quantitative survey with 501 respondents, Christian application users were asked to rate their digital application usage, their practice of spiritual disciplines, the perceived value of Christian applications and the perceived spiritual growth through Christian applications. The results suggest that the usage of worship and Bible reading applications has a significant effect on perceived spiritual growth through these applications. Furthermore, applications of all spiritual disciplines except for attending church have a significant effect on the practice of spiritual disciplines. However, the results also suggested that the practice of spiritual disciplines could not be explained by perceived spiritual growth.

Hence, spiritual growth did not mediate the relationship between the frequency Christian applications were used and the practice of spiritual disciplines. Application builders and church or denominational leaders could use this research in their advantage, incorporating behaviour change theories in Christian applications in order to motivate more users to transform their behaviour and motivate churchgoers or other members of the congregation to use these applications in order to perceive more spiritual growth or practice the spiritual disciplines more often. This would be of advantage to churchgoers, as the respondents of the survey deemed the applications as very valuable.

KEYWORDS: *Technologies of self, quantification of self, smartphone applications, Christianity, spirituality, self-monitoring, spiritual growth*

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1. Introduction

There has been a rapid growth in the usage of digital technologies, opening up a world of opportunities for tracking and adjusting lifestyles (Luxton, McCann, Bush, Mishkind & Reger, 2011). With the use of smartphones, tablets and other digital devices, people can use applications to monitor their behaviour and habits (Azar, Laing & Burke, 2013). Using these applications can lead to increased knowledge of their current behaviour and also help users adjust these behaviours accordingly. Many studies have looked into applications concerning health, meditation and physical well being, but there is a limited amount of studies on spirituality (Aguilar-Martinez et al., 2014; Bellar, 2016; Campbell, 2013; Chen et al., 2016; Dennison et al., 2013; Moglia & Castano, 2015; Tkach, 2014). Be that as it may, there are hundreds of Christian applications in application stores for both Android and Apple smartphones (Tkach, 2014). Since other studies have found that applications offering the opportunity to track ones lifestyle could have a significant effect on the behaviour of users, it is deemed relevant to look into applications with which one can monitor and adjust their spiritual disciplines (Aguilar-Martinez, Solé-Sedeño, Mancebo-Moreno, Medina, Carreras-Collado & Saigí-Rubió, 2014; Chen, Bauman & Allmna-Farinelli, 2016; Dennison, Morrison, Conway & Yardley, 2013). However, while the possibility of the effect is present, there have not been any findings saying that applications have a direct positive relationship with behaviour (Conroy, Yang & Maher, 2014; Middelweerd, Mollee, van der Wal, Brug & te Velde, 2014; Patogo, Schneider, Jojic & DeBiasse, 2013). Only Aguilar-Martinez et al. (2014) found that mobile phones can be used as a tool for weight loss, with significant effects.

When looking at the history of people self-recording their everyday activities, it appears that there have been several ways people have been tracking their behaviour (Wheeler & Reis, 1991). A first method that has been used is frequency counting, next to the often-used diaries. According to Hiemstra (2002), keeping diaries or journals has helped users to grow and learn and therefore to strengthen their inner capacities. In behavioural medicine, the use of the life chart was also introduced, where one could organize one's own medical data (Wheeler & Reis, 1991). Although self-monitoring has been done for many years in an assortment of ways, increasingly people have begun monitoring their movements, habits and overall behaviour through digital applications (Bakardijeva & Gaden, 2011). According to Wolf (2009) and Whitson (2013), the use of digital applications to self-track ones movements is seen as more reliable than tracking ones activities in an analogue manner, since using digital applications would randomize and automatize the time when users would be asked to fill in their current mood, activities or other behaviour (Wolf, 2009). Furthermore, while the old forms of self-monitoring were mostly visible in medicine

and among athletes, new forms of self-monitoring can be used by everyone who owns a digital device (Singer, 2011; Wheeler & Reis, 1991).

The tracking of activities via digital applications is often described as the quantification of the self, which involves collecting everyday activities and turning these into data, and then both visualizing and giving feedback on those data (Whitson, 2013). This 'quantification of the self' idea, coined by Wired writers Kevin Kelley and Gary Wolf, focuses on how people use the newest technologies to quantify their everyday movements (Wolf, 2009). This can take multiple forms, as Paul McFedries explains, with some people quantifying their every activity in daily life, others just monitor those activities they find important (McFedries, 2013).

The intensive monitoring of daily practices was a significant concern of Michel Foucault, who discussed practices of the self as the means by which individuals affect activities and movements within their own body, soul and thoughts, in order to change themselves to attain a state of happiness, purity, wisdom, perfection or immortality (Foucault, 1988). Foucault shifted from his early focus on discipline and power towards a focus on practices of the self, starting with examining the Greeks and Romans and how they monitored themselves. Later work focused on how these practices were taken over by institutions, including schools, churches and hospitals (Bakardijeva & Gaden, 2011). In an interview, Foucault referred to these practices as the technologies of the self, explaining them as:

“... an exercise of self upon self by which one tries to work out, to transform one's self and to attain a certain mode of being.”

(Fornet-Betancourt, Becker, Gomez-Müller & Gauthier, 1987, p. 113).

As Foucault's work demonstrates, the idea of transforming oneself to form new habits has been around for centuries (Bakardijeva & Gaden, 2011). Almost every bookstore still has sections on self-help books, diaries and other notebooks that will help one to know him- or herself better. The idea of transforming oneself or forming new habits is thus not new. However, with the arrival of new technologies, there are new means that people rely upon to transform their behaviour. With the arrival of digital devices and the development of applications for these devices (Lupton & Jutel, 2015), one can install notifications and receive push alerts via email and other applications on numerous devices including tablet computers and smartphones.

Before examining the use of applications that offer the option of self-monitoring, it is important to find out why people use smartphones among other digital devices in general. Past work has shown that there are several reasons for smartphone usage, such as escaping reality, finding information online and communication (Hiniker, Patel, Kohno & Kientz, 2016; Joo & Sang, 2013). In their study of predicting the uses and gratifications behind smartphone-usage behaviours,

Hiniker, Patel, Kohno and Kientz (2016, p. 634) found that people use smartphones for instrumental and ritualistic purposes. Whereas the “instrumental purposes are goal-directed and purposeful, ... ritualistic uses are habitual and diversionary”.

However, simply looking at smartphone usage is not enough to explain how people use digital applications to self-monitor their daily activities. Wu, Kang and Yang (2015) showed that American smartphone users spent almost 90 per cent of their media time on smartphone applications in the last quarter of 2013. In the Apple application store, more than 140 billion applications were downloaded, next to 65 billion downloads in the Google Play application store and this number is only growing, which shows the importance of smartphone applications (Statista, 2016). The biggest market for smartphone applications exists in the United States (Statista, 2012). Nielsen (2014) found that adult smartphone users in the United States spent more than 30 hours using smartphone applications per month, using on average 26 applications. Next to that, almost twenty per cent of smartphone users have used an application to track physical activities (Nielsen, 2014).

Since smartphone applications have been so prevalent in society nowadays, it comes to no surprise that many studies have looked into the function of smartphone applications and what they have brought to users. Studies have shown that smartphones, their functions and applications offer potential to transform lifestyles because of their user-friendliness, portability and accessibility (Aguilar-Martinez, Solé-Sedeño, Mancebo-Moreno, Medina, Carreras-Collado & Saigí-Rubió, 2014; Chen, Bauman & Allmna-Farinelli, 2016; Dennison, Morrison, Conway & Yardley, 2013). Furthermore, it has been argued that the increase in smartphone ownership coincided with a proliferation of health and lifestyle focused smartphone applications (Chen et al., 2016; Khalaf, 2014). Aguilar-Martinez et al. (2014) stated that communicating via these technologies has had a bigger effect on for example motivation and self-efficacy than more conventional means of communication. They have also argued that people have lost and maintained their weight by self-monitoring their food intake and activities with digital devices (Aguilar-Martinez et al., 2014). Finally, these applications offer the opportunity to let users self-monitor their behaviour and activities.

Research into the quantification of self has primarily focused on health and lifestyle tracking, including menstrual cycles, weight loss and sleep tracking (Aguilar-Martinez et al., 2014; Chen et al., 2016; Dennison et al., 2013; Moglia & Castano, 2015). However, while many aspects in health and lifestyle have been studied, there are other aspects of health and lifestyle that have not been studied yet, for example the field of spirituality (Powell, Shahabi & Thoresen, 2003). Spiritual applications have been said to change the United States’ religious landscape (Kuruvilla, 2013) and to give way to new forms of prayer, meditation and Bible reading (Turner, 2015). Wes Granberg-

Michaelson wrote that while many people think Christianity is dying, there has actually been a major shift in where Christianity proliferates (Granberg-Michaelson, 2015). Whereas 80 per cent of the world's Christians lived in North America and Western Europe a century ago, that number went down to 40 per cent. While this seems to show the secularization of North America and Western Europe, Granberg-Michaelson (2015) argues that this number does not include the millions of immigrants in North America, of whom 74 per cent adhere to the Christian faith. Norris and Inglehart also challenge the theory of secularization in their book *Sacred and Secular* (Norris & Inglehart, 2004). They point to critics stating the indicators of religious vitality nowadays, such as the popularity of church going in the United States and the evangelical revival in Latin America. As Peter L. Berger argues:

“The world today, with some exceptions... is as furiously religious as it ever was, and in some places more so than ever. This means that a whole body of literature by historians and social scientists loosely labelled ‘secularization theory’ is essentially mistaken”
(Berger in Norris & Inglehart, 2004, p. 1).

Norris and Inglehart conclude saying that the world currently has more inhabitants with religious views than ever before and this number is still growing (Norris & Inglehart, 2004). Next to that, 80 per cent of the world's population adhere to a religious group (Buie & Bell, 2013). Still, there has been limited research in this field (Bellar, 2016; Campbell, 2013; Tkach, 2014). According to Buie and Blythe (2013), there are several reasons for the lack of research papers on spiritual applications. First of all, it is difficult to address spirituality, as it is a subjective subject, which is difficult to conceptualize. While there have been some developments in turning spirituality into a measurable construct, it is difficult to put a subjective experience into an objective observation (Buie & Blythe, 2013). Furthermore, it is a sensitive subject prone to social desirability bias.

Nonetheless, there is some existing scholarship in this field. Firstly, Bellar (2016) looked at how Evangelical Christians chose religious iPhone applications, how they used them and how their expectations compared with their experience through in-depth interviews. She found that people chose and used applications based on the ease of use, convenience, reviews and for their desire of Bible reading and encouragement (Bellar, 2016). Bellar also found that people used these applications mainly for themselves and their personal relationship with God, and only participated in a community when looking for reviews of applications (Bellar, 2016). However, she limited her focus to only Christian iPhone applications. Next to that, Bellar focused mainly on exploring and explaining findings to understand the phenomenon of the usage of religious iPhone applications.

A second study has been done by Tkach (2014). He broadened the scope of religious smartphone applications by also including smartphone applications from Android application stores, in contrast to Bellar (2016). In his research Tkach (2014) found a method where he was able to accumulate more than 30 000 religious applications and put them in an organized structure, since he recognized the proliferation of smartphones and the trend of Christians to share their faith via new technologies. However, he also stated that there is no way of knowing how many people have used these applications, how these applications have been used and for which reasons.

Both Tkach (2014) and Bellar (2016) based some of their research on a study done by Heidi Campbell (2013), who came up with an approach in order to create a system of the development of media usage by religious groups. The approach consisted of four steps. First of all, one should understand how a certain religious group used to treat technological innovations. Secondly, one should look into the group's beliefs and values and how they interpret new media developments. Thirdly, Campbell (2013) explains how one should look at the negotiation process between the innovation and authority that will determine the place of the innovation within the group's religious framework. Lastly, one should look at how the application users incorporate the technology by looking at the usage of the new media and the discourse among believers surrounding the new media.

This thesis focused on researching the usage of self-monitoring applications, on a population that has never been fully studied before in this format. It is therefore comprehensively different from earlier studies on Christian applications. By creating an international survey, distributed in five languages, this thesis significantly increases our understanding of self-monitoring applications for Christian spirituality. This was done by focusing on the Christian population in North America and Western Europe. Tkach (2014) mentioned in his research that there are currently more than 8000 Christian applications in all application stores, of which many may offer the ability to track and self-monitor one's activities. In conjunction with the potential to receive Christian daily and/or weekly notifications via email, these applications represent a significant realm of opportunities to research. How a diversity of Christian faith expressions use Christian applications to self-monitor and even shape their faith is a crucial question given the increasing importance of religion for many in contemporary society.

This has led to the following research questions:

RQ1: To what extent does the usage of spiritual applications influence the practice of spiritual disciplines and the perceived spiritual growth through spiritual applications to self-monitor spirituality regarding North American and Western European Christians?

RQ2: To what extent does the perceived spiritual growth through spiritual applications to self-monitor spirituality influence the practice of spiritual disciplines, regarding North American and Western European Christians?

2. Theoretical framework

In order to answer the research questions posed, it is necessary to look into several sets of literature to gain knowledge and understanding in the fields of technologies of the self, quantification of the self and spiritual disciplines. Therefore, the concept of technologies of the self, detailed by Michel Foucault will be introduced. In order to do this, there will be a brief elaboration on the main focus areas in Foucault's work, starting with his first works. In this section, the concept that people have been self-monitoring themselves for centuries will come back, which will lead back to the importance of studying self-monitoring nowadays. This will be followed by a section on the quantification of the self, as coined by Wired alumni Kevin Kelley and Gary Wolf (Wolf, 2009). As the quantification of the self is mostly realized on digital devices such as smartwatches and smartphone applications, a section on digital devices offering the possibility of self-monitoring will follow. Lastly, this theoretical framework will look into Christianity online and Christian disciplines in Western culture in the current age. In the last section, several hypotheses will be introduced, based on the findings in literature.

2.1 Technologies of the self

In his earlier work, Foucault mainly focused on practices of punishment, for example looking into the system of prisons (Bakardijeva & Gaden, 2011). Despite this, he pressed that it was not his goal to study power, but it was his goal to find out how human beings are made subjects (Foucault, 1982). In his article on the subject and power, he introduced three different modes how human beings achieve this. Firstly, people attempt to place themselves in the status of sciences, by placing their work in an analysis of wealth and economics, or their existence in an analysis of biology (Foucault, 1982). Secondly, people objectify themselves by dividing themselves inside oneself or by dividing themselves from others. Lastly, people objectify themselves by recognizing oneself as a subject of sexuality (Foucault, 1982).

While Foucault argued that his focus was on the human being as a subject, he is mainly known for his theories on the relationship between power and knowledge (Bakardijeva & Gaden, 2011; Bell, 1992). As Philip Stokes argues:

“The theme that underlies all Foucault's work is the relationship between power and knowledge, and how the former is used to control and define the latter.”

(Stokes, 2004, p. 187).

In his final years, Foucault focused on the history of sexuality, with the second volume dealing with technologies of the self, also referred to as techniques or practices of the self. According to Foucault, these practices were central to the lives of the Greeks and the Romans, who practiced the caring of oneself by constantly writing, but were later taken over by institutions (Bakardijeva & Gaden, 2011). In an interview with Raúl Fernet-Betancourt, Helmut Becker, Alfredo Gomez-Müller and J. D. Gauthier, Foucault explained the technologies of the self as

“... an exercise of self upon self by which one tries to work out, to transform one’s self and to attain a certain mode of being.”

(Fernet-Betancourt, Becker, Gomez-Müller & Gauthier, 1987, p. 113).

While the care of the self was first understood by the Greeks and Romans as an effort to create an ethical self, which was highly valued and respected, it was later associated with egoistic self-love (Bakardijeva & Gaden, 2011). According to Foucault, the constitution of the subject was taken over by doctrines and fundamental principles that moved the ways that the subject constituted him or herself to the centre of attention (Fernet-Betancourt et al., 1987).

Foucault defined the technologies of the self as technologies with which people can affect a number of operations on their bodies, thoughts, conduct and way of being alone or with help of others. The goal of this is to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection or immortality (Foucault, 1988). Whereas this thesis will focus mainly on the technologies of the self, it is important to note that Foucault introduced four types of technologies, including the technologies of production, technologies of sign systems and technologies of power (Foucault, 1988). Bakardijeva and Gaden (2011) argue that these four types almost never function separately, but all play an important part in the constitution of the human being. According to Foucault, while technologies of the self come closer to the recognition of agency than any other concept coined by him, the technologies of the self are in close relation with domination, especially individual domination (Foucault, 1988).

Foucault argued that in order to care for oneself, one needed to know oneself (Fernet-Betancourt et al., 1987). He introduced three more conditions for the care of the self. Firstly, one needed to know how to live without luxury. Secondly, one should often subject him- or herself to an examination of one’s own conscience. Lastly, one should always be in control (Whitson, 2013). Further on in his work, Foucault moved from the Greeks and Romans to early Christianity, where the self had to be cleansed by certain rituals, for which oneself needed to know him- or herself well (Foucault, 1988). In early Christianity, it was needed to confess to God and later to a priest, while it is currently more accustomed to confess one’s sins or problems to a psychoanalyst (Bakardijeva &

Gaden, 2011). By confessing one's sins or problems, one would place himself or herself in a relation of power with the person they speak to. By confessing to power, the sins and problems turn around and let sinners act upon or redeem themselves. The process of confessing sins and speaking to a psychoanalyst reinforces the idea that their sins and problems are not appropriate and need change or action.

The concept of technologies of the self was coined in the 1980's. While organisations still have a major role in technologies of the self, there are other technologies people can use to monitor themselves. For example, with digital devices one can follow or track oneself. With the arrival of smartphone applications, smartwatches and other digital devices, people can currently self-monitor their own activities. Hence, the data that come out of this process is not produced for others, but are directly sent to the users, so the users can change what is deemed necessary to them. It is important to note that while the data are produced for the users, it can also be shared with others, inviting a public to their 'confessions'. The public, in this case, is not here to sustain a relation of power, but to recognize and evaluate what users do, which in turn forces users to keep up the expectations of their public.

2.2 Quantification of the self

Before digital devices became a predominant way to monitor and share information about one's exercise, or in this case, update one's Bible reading plan for the public and oneself, there were a number of analogue ways in which one could track his or her activities. People have been self-monitoring their activities in life for many centuries. These analogue ways of self-monitoring included measuring weight and heart rate through the use of scales or heart rate meters, to name two examples (Whitson, 2013). The shift from analogue ways of tracking to digital ways resulted in an enormous increase of data, requiring a new way of understanding. This approach was coined by Gary Wolf and Kevin Kelley, who recognized the trend that people started using digital devices to analyse their movements and activities (Wolf, 2009). They called this movement or trend the quantification of the self, referring to people transforming their movements and activities to data that they would receive feedback on. The process of quantification gives a "collective picture of a social body", such as one's financial well being, which can then inform the composition and application of policies on a macro-level (Whitson, 2013, p. 167). With the feedback one has received on his or her movements or activities, one can influence his or her future behaviour. The quantification of the self contributes to the efforts of users to learn more about themselves in order to improve their lives (Lupton, 2014).

Pantzar and Shove already gave an example of quantification in 2005, when they argued that heart rate meters gave people the opportunity to see their own heart and influence their heart rate by adjusting their activities. Therefore, heart rate meters have the possibility to redefine

personal health, since one could adjust his or her heart rate (Pantzar & Shove, 2005). This is in line with Foucault's conception that people have the possibility to control their bodies through reasoning by caring for oneself.

Like heart rate meters, the digital or non-digital devices used for self-tracking can be seen as surveillance apparatus (Whitson, 2013). This object would observe what you want it to observe and potentially give feedback in the form of data in order to adjust your lifestyle. Through this, it is surveilling one's behaviour and activities. It has also been described as participatory surveillance, involving one turning the gaze upon oneself for his or her own purposes, voluntarily (Lupton, 2014). According to Lupton (2014), who connected her research to Foucault's technologies of the self, quantification of the self tends to require self-reflection and examination. With the data given as feedback, one can quantify oneself and come to know oneself, which is a condition for the care of the self (Fornet-Betancourt et al., 1987). Hence, one needs data from for example applications on digital devices, in order to take care of oneself.

As a result of this idea, a large commercial market has proliferated (Lupton, 2014). All kinds of digital devices allow for the possibility to have small sensors embedded in the technology, which can be worn on or even in the body (Lupton, 2014). So far, these sensors are able to measure features like body mass index, physical activity, sleep patterns, time management and heart rate. These features are available on tens of thousands applications that can be downloaded (Lupton, 2014). Nowadays, the accumulation of data is often done automatically, which results in more data that is easier to gather, cheaper to store and easier to get interesting and increasingly elaborate feedback on (Whitson, 2013). Especially with smartphone applications and applications on other digital devices, one can enter and store data and get feedback instantaneously. Furthermore, the data can be uploaded and shared to websites or social media platforms, so users can compare their progress with others (Lupton, 2014).

Some applications are able to connect to systems as heart rate monitors or weight scales wirelessly. Other applications have features to motivate application users like reward systems that give users points, badges or actual money (Lupton, 2014). Hence, quantification applications offer a clear benefit to users: when used voluntarily, one can achieve personal goals or ideals, which are related to monitoring one's own health in an enjoyable manner (Lupton, 2014).

In the applications, there is a strong focus on numbers. Hence, one gets to know oneself in an objective manner, which according to Lupton (2014), is removed from the subjective nature of human beings. The body is transformed into a subject, but also a product of measurement and interpretation. The technology thus encourages users to think about themselves through numbers (Lupton, 2014). In the case of this thesis, spirituality is thus brought back to numbers: how often does one pray in a day, read the Bible in a week or go to church in a month. These numbers influence the perceived health of one's spirituality.

2.3 Digital devices

The automated collection of data and the ability to quantify certain aspects of the self in daily life are predicated on the proliferation of digital devices. According to research done by Pew Research Center, technology device ownership, especially smartphones and tablets have been growing enormously in the last five years (Pew Research Center, 2015). In 2015, more than two thirds of the American population owned a smartphone, a population that has doubled in comparison to smartphone ownership in 2011. People aged 18-29 and 30-49 are especially reported to have high smartphone ownership, as well as households earning at least \$75 000 per year (Pew Research Center, 2015). Furthermore, research has shown that people with higher education levels were more likely to own a smartphone (Smith, 2015). According to Chen et al. (2016), the increase of smartphone ownership is connected to the proliferation of commercial smartphone applications that offer the possibility of self-monitoring.

Pew Research Center's findings have also shown that smartphone ownership has surpassed computer ownership, both desktop and laptop, as younger smartphone owners do not feel the need to have other kinds of devices next to their smartphone (Pew Research Center, 2015). However, this research done by Pew Research Center did not focus on smartwatches, another upcoming technology in the field, which also allows for self-tracking, especially for sport activities. However, smartwatches also offer opportunities for Christian applications like YouVersion, which lets users read the Verse of the Day on their smartwatch. According to Martin (2016), almost half of all millennials in the United States own a smartwatch. Next to that, 23% of non-millennials own a smartwatch (Martin, 2016).

Smartphone ownership in Western Europe is comparable to the United States, according to Pew Research Center (Poushter, 2016). Especially France, Germany, Italy, Spain, the Netherlands and the United Kingdom are mentioned alongside the United States and Canada. Especially since Internet access in these Western countries is higher than in developing or emerging economies, it is interesting to look into how these countries have used digital devices and how they are using them now. According to Poushter (2016), millennials, aged 18 to 34, are more likely to be Internet and smartphone users, who also tend to access the Internet at least everyday and use social media more than older generations.

There are several recurring themes in people's phone usage, such as escapism, information seeking and communication (Hiniker, Patel, Kohno & Kientz, 2016). It has also already been stressed that this thesis would mainly look at instrumental purposes, which are goal-directed and purposeful, since Hiniker et al. (2016) found that applications targeted at health, utility and saving that possibly provided the opportunity to self-monitor were used for instrumental purposes. Furthermore, they found that these instrumental applications were used most in the morning and afternoon, while ritualistic phone usage occurred in the evening and night. This was also found by Casey Cep (2014), who covered research of SoulPulse, a Christian tool to measure spiritual growth. Cep (2014) mentioned that spiritual awareness peaked in the morning and decreased throughout the day.

2.4 Christian disciplines and applications

Casey Cep's article for The New Yorker in 2014, "Big Data for the Spirit", reviews the use of SoulPulse. SoulPulse is a tool that lets one measure one's soul by capturing real-time data on spirituality in order to grow spiritually. It has also been labeled the spiritual version of what FitBit has done for the human body (Cep, 2014). After filling in a brief survey on SoulPulse, the service will contact a person twice a day with several questions about one's health, spiritual disciplines and religious experiences. In his personal experience, Casey Cep says he received important information on his spirituality and could adjust his times of prayer and reading the Bible to increase spiritual awareness at certain times. Hence, SoulPulse helped him to self-monitor his faith in order to create a new state of being. As Foucault would argue, he learned to know himself better in order to take care of himself through these technologies of the self.

While SoulPulse is very clearly a self-tracking service, there are many more Christian applications that offer the possibility of self-monitoring. According to Laura Turner (2015), there is a concept of spiritual formation behind a number of Christian applications. She argued that by undertaking certain practices or disciplines and being reminded of these actions, Christians can live more towards the lifestyle they want as Christians. Turner (2014) summarized her article by saying that personal devices offer the opportunity to encourage spiritual growth. This was also argued by

Timothy Hutchings, who recognized that the participants of his survey read the Bible more consistently and purposefully because of the push notifications they receive on their smartphones (Hutchings, 2014).

Some applications known for their possibility to self-monitor are Prayer Notebook, which allows one to set daily reminders in order to pray for everything and everyone when one wanted to (McMann, n.d.). One of the most popular applications is YouVersion, a Bible reading app that has been downloaded nearly 200 million times. It lets one make and follow reading plans and one can receive daily notifications with the Verse of the Day (Turner, 2015). With Daily Jesus one can receive daily messages from Jesus, with confession applications Roman Catholics can confess their sins and with Instapray one can share their prayers with others. Another Christian application that helps you pray with reminders and prayer requests is Prayermate, just like Prayer Calendar by Voice of the Martyrs (Kranz, 2015).

According to Tkach (2014), most Christian applications within the Apple App Store are Roman Catholic, with more than 1776 applications. Under the search term Christianity, at the time of his research 1322 applications could be found, Tkach notes, not including Protestant applications (154), Presbyterian (219), Pentecostal (174), Methodist (306), Lutheran (294) and Evangelical (187). Since there is a higher number of Roman Catholic applications than Protestant applications, it could be assumed that Roman Catholic Christians are more interested in Roman Catholic applications than Protestant Christians in Protestant applications.

2.4.1. Christianity online

The presence of Christianity online is significant. Not only are there are thousands of applications (Tkach, 2014), there are many Christian bloggers and vloggers, a multitude of Christian Facebook groups and many forums where Christians can discuss their faith. According to Van Kampen-Breit (2015), the usage of a religious application can solidify one's faith and allows users to share content with others. Next to that, through the application, one can hold up a mirror and see ones own spiritual reflection (Van Kampen-Breit, 2015).

Christianity's online presence has several implications. According to Sehl Jr. (2014) churches have not been on keen on implementing technologies as smartphones in their traditional culture. A phone would be a distraction and Christians would be prompted to leave their phones at home when going to church, or to put their phone away when reading the Bible or praying. However, many Christians currently realize the benefits of using a smartphone or applications in order to proliferate their faith (Sehl Jr., 2014). This could cause a tension within churches. As Campbell argues:

“Religion that is constituted in new ways through digital media and cultures... this recognizes that the reformulation of existing religious practices have both online and offline implications. It also means digital culture negotiates our understandings of religious practice in ways that can lead to new experiences, authenticity and spiritual reflexivity” (Campbell, 2013, p. 3).

While most churches have not openly welcomed technologies as smartphones within their congregations, churches have made several steps in implementing technology. Trammell wrote a chapter in *The Electronic Church in the Digital Age*, arguing that most local churches currently have a website where news and Sunday sermons are shared (Trammell, 2015). Furthermore, churches have started embracing digital applications, social media and blogs (Trammell, 2015). Even Pope Francis lauded the Internet, saying it is a gift from God (Fung & Boorstein, 2014).

2.4.2. Christian denominations

Christians normally belong to different denominations. Within the United States, these denominations are predominantly separated between Roman Catholics, Evangelical Christians and Mainline Christians (Pew Research Center, 2015). These denominations can also be found in Western Europe, where Roman Catholicism, Orthodoxy and Protestantism are the main denominations. Within the United States and Europe, there are many different Protestant denominations, such as Lutheranism, Anglicanism, Baptism, Calvinism and Evangelicalism.

Altogether, the United States and Europe hold the most Christians in the world, with Christians living in the Americas making up 37% of all Christians. Europe currently holds 26% of all Christians (Pew Research Center, 2011). According to Pew Research Center, two thirds of Christians in the Americas are Catholics, while almost fifty percent of Europeans are Catholic.

2.4.3. Christianity and self-discipline

When there are so many Christian denominations in the world, it is interesting to see what effects Christianity has on human lives. McCullough and Willoughby (2009) summarized some of the effects, including religion being positively associated with longevity and with a reduction in mortality. Furthermore, individuals who scored higher on religiousness drank and smoked less than non-religious individuals. The same went for many more health-related activities, like going to the dentist and taking vitamin supplements. Religion has also been associated with psychological well-being (McCullough & Willoughby, 2009).

While these associations might partly be coincidental, McCullough and Willoughby (2009) argue that these positive associations are mainly due to the idea that religion promotes self-regulation and self-control. In their literature review, McCullough and Willoughby (2009) stated that thirteen out of fourteen studies found that religiousness was positively associated with self-control. Next to that, religion was also said to influence people's goals and in some ways, assist in prioritizing certain goals above others. Furthermore, religion may have influenced people's motivation to obtain the goals by sanctifying them (Mahoney et al., 2005). These goals can be inspired by their local church, their community or by the Bible. When these goals are inspired by the Bible, they are often called Christian disciplines, practices that are meant to increase Christlikeness.

In order to maintain personal discipline and self-regulation, it is necessary for an individual to see where he or she is now and what he or she wants to achieve. Therefore, self-monitoring is required (McCullough & Willoughby, 2009). Religiousness and self-consciousness are highly associated with each other, showing that Christians self-monitor in order to self-regulate (Saucier & Skrzypinska, 2006; Watson et al., 2002). One of the reasons why Christians self-monitor is their perceived interaction with God, which increases self-awareness (McCullough & Willoughby, 2009). Next to that, many religious rituals also foster self-monitoring, as Christians often believe they are not living up to the standards of their religion (McCullough & Willoughby, 2009). By continuously performing religious rituals, Christians foster the development of self-regulatory strength (McCullough & Willoughby, 2009), meaning that long-term religious involvement can lead to an increase in self-regulatory strength. Finally, McCullough and Willoughby (2009) found that religion affects health, well being and social behaviour through self-regulation and self-control.

Self-discipline is not an unheard of subject in Christianity (Anderson, 2013; MacArthur, 1998; Marrazzo, 2015). According to Marrazzo (2015), self-discipline keeps Christians healthy and increases their focus and productivity. MacArthur (1998) argued that self-discipline is something that must be learned by all Christians, since it is synonymous for being obedient to God. Anderson (2013) stated that one could only perform spiritual disciplines if one is self-disciplined.

2.4.4. Christian disciplines

When someone is a Christian, and particularly in relation to the denomination they may belong to, certain behavior and practices are expected. As Donald Whitney (2014) notes, these are not simply a type of behaviour expected by society, but one that Christians see as also expected by God. Whitney (2014) argues that Christianity is a faith that indicates Christians should grow towards Christlikeness until the return of Jesus, when Christlikeness will be granted by Jesus. While he recognizes this goal is impossible for Christians to truly become like Jesus Christ - the perfect example of godliness, righteousness and holiness - God commands Christians in the Bible to

discipline themselves for the purpose of godliness (Whitney, 2014). With this command and throughout the Bible, several practices are explained as the spiritual disciplines that promote spiritual growth (Foster, 1989; Whitney, 2014). In his book, Whitney (2014) discusses several personal spiritual disciplines in order to achieve spiritual growth. Furthermore, it is important to state that these disciplines are practices and activities, not attitudes or character qualities. Neither are the spiritual disciplines 'laws' (Foster, 1989). Rather, every Christian is able to practice spiritual disciplines, since they do not require certain qualities or attitudes (Whitney, 2014).

For this study, the spiritual disciplines focused on are limited to what are seen as the Biblical disciplines. While some Christians might see exercise or gardening as spiritual disciplines that bring them closer to God, these disciplines are not necessarily outlined in the Christian scriptures – the Bible – and could make the list of spiritual disciplines infinite. Although it is not claimed that the following list of spiritual disciplines is exhaustive, these spiritual disciplines are mentioned clearly in the Bible.

The spiritual disciplines that Whitney (2014) introduced are Bible intake (or reading), prayer, worship, evangelism, serving, stewardship, fasting, silence and solitude, journaling and learning. Although not mentioned by Whitney, another Biblical discipline is the practice of fellowship, both in terms of meeting with other Christians formally and informally as in the attendance of church. Given Whitney's focus, it is assumed that this practice is not mentioned since it is seen as an interpersonal spiritual discipline, while Whitney primarily focused on personal spiritual disciplines. However, since some spiritual disciplines like prayer and worship are also often done together, attending church is added to the list of spiritual disciplines. This was also argued by Richard Foster, who separated the spiritual disciplines in three categories: inward disciplines, outward disciplines and corporate disciplines (Foster, 1989). Attending church and fellowship are both part of the corporate disciplines. Another spiritual discipline that is mentioned by Bill Donahue (2002) but not by Donald Whitney is confession, a spiritual discipline that resonates more with Roman Catholics.

While some spiritual disciplines are quite straightforward and easy to measure or recognize in ones life, other spiritual disciplines are more difficult to pinpoint. Therefore, the spiritual disciplines that are more difficult to be measured, such as evangelism, service, stewardship, silence and solitude and learning, have been left out of the analysis. For this research, our efforts are concentrated on the spiritual disciplines of Bible reading, prayer, worship, fasting, journaling, attending Church, fellowship and confession.

2.5 Hypotheses

In order to answer the research questions of this thesis, hypotheses need to be formed based on the theoretical framework. This has led to hypotheses on the usage of spiritual applications and the usage of these applications in combination with the spiritual disciplines and denominations.

RQ1: To what extent does the usage of spiritual applications influence the practice of spiritual disciplines and the perceived spiritual growth through spiritual applications to self-monitor spirituality regarding North American and Western European Christians?

RQ2: To what extent does the perceived spiritual growth through spiritual applications to self-monitor spirituality influence the practice of spiritual disciplines, regarding North American and Western European Christians?

The research questions have led to the following hypotheses.

H1: People who indicate a higher usage of spiritual applications to self-monitor faith, perceive more spiritual growth through prayer applications.

H2: People who perceive more spiritual growth through prayer applications, practice spiritual disciplines more often.

H3: People who indicate a higher usage of spiritual applications to self-monitor faith, perceive more spiritual growth through Bible reading applications.

H4: People who perceive more spiritual growth through Bible reading applications, practice spiritual disciplines more often.

H5: People who indicate a higher usage of spiritual applications to self-monitor faith, perceive more spiritual growth through worship applications.

H6: People who perceive more spiritual growth through worship applications, practice spiritual disciplines more often.

2.6 Conceptual model

The six hypotheses formulated based on theoretical and empirical knowledge, led to the following conceptual model. Figure 2.1 provides a clear visual overview of the hypotheses.

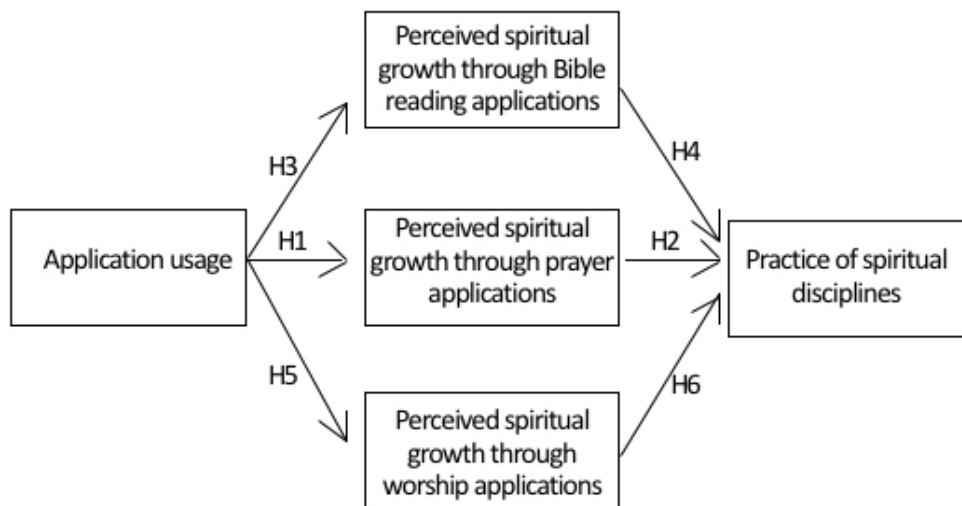


Figure 2.1 Conceptual model

3. Research design

3.1 Method

In order to most effectively answer the research questions noted above a quantitative method has been chosen. Quantitative research often takes on a deductive approach. Hence, the researcher was able to formulate certain expectations based on theory, hypotheses. In order to prove their truth, they are tested through an online survey. Because of this method, the relationship between variables could be researched (Punch, 2014).

Quantitative research allows for a broader study and can involve a greater number of subjects, which in turn allows for the generalization of the results (Babbie, 2010). By using a digital questionnaire, personal bias is limited since there is no direct contact with the participants. Next to that, quantitative research allows for a replicable and verifiable study (Babbie, 2010). Furthermore, quantitative research is more efficient to test hypotheses and can result in a great amount of results, which can be generalized (Babbie, 2010).

However, this method also has its drawbacks. As spirituality is a personal and possibly vulnerable subject, one may not want to give complete truthful answers in a survey. But, a quantitative survey allows participants to self-classify their behavior and attitudes (Neuman, 2014). Since it is assumed that the survey will be filled in alone, judgment from others is avoided. Next to that, a question was added to limit the social desirability bias, creating a more reliable survey. However, a survey does not give the possibility to ask further on certain questions, thus limiting the response that participants can give (Babbie, 2010).

For this thesis, a cross-sectional design has been chosen, since it is not costly and is therefore attractive for a thesis. Because of this design, participants only have to fill in the survey in one specific point in time. Furthermore, different population groups could be compared at a single point in time. This study design also allows for many different variables to be studied at the same time.

3.2 Sample and sampling method

In order to reach the biggest group of participants, convenience sampling was used. According to Farrokhi and Mahmoudi-Hamidabad (2012), convenience sampling is a type of non-probability sampling in which members of the population are selected for the purpose of the study if they meet certain criteria. In this case, the members of the population must be Christian, use spiritual applications and be willing to fill in the survey. Convenience sampling was chosen because the most accessible subjects may be chosen and it is the least costly in terms of time and money (Marshall, 1996). However, the limitations of this sampling method should be mentioned. First of all, variability and bias cannot be measured or controlled (Acharya, Prakash, Saxena & Nigem, 2013).

Secondly, it is argued that the data cannot be generalised beyond the sample (Acharya et al., 2013). Though Christians from all denominations have been asked to fill in the survey, this argument may not stand.

In order to limit personal bias, a new Facebook Page has been created with the name of this study. The survey has been distributed in more than 50 Christian Facebook groups, two LinkedIn groups, an Instagram page and the personal Facebook account of the researcher. In order to find a heterogeneous population, the survey has been distributed in Christian Facebook groups of all denominations, in all groups that could be accessed. The survey has been shared mostly with English and Dutch-speaking groups, as the researcher was not fluent in German, French or Spanish. However, the translators of survey were also asked to share the survey in their native language. Next to convenience sampling, snowball sampling was used. Because of this, the survey was also shared on forums, in church newsletters, blogs and other Christian websites.

In order to increase the research population, the survey was translated in five languages: English, French, German, Dutch and Spanish. The survey was translated by native speakers and proof-read and edited by two other native speakers, in order to limit spelling and grammar mistakes and make sure the questions asked what they should ask.

Since this thesis looks at how people use Christian applications to self-monitor their faith, the research population consists of participants that have installed and used such an application on their smartphone or other digital device. In order to find a population group that has enough experience with said applications, users were asked how often they used spiritual applications.

It has been assumed that all participants are Christian and have used such an application. When the respondent indicated that he or she is not a Christian or does not have a digital device, they were not able to fill in the complete survey, resulting in a more valid group of participants. This thesis mostly focuses on North America and Western Europe, since this is where the likely sample will come from. Christians from all denominations could fill in the survey, since this thesis did not focus on one denomination in particular. For this thesis, it is required to have at least 250 participants. However, this survey has reached 385 completed responses, in order to have a more valid sample.

3.3 Operationalization and measurements

Religion has been measured in a multitude of ways, as there has been an explosion in research surrounding religiousness and spirituality since the 1990's (Hall, Meador & Koenig, 2008; Moberg, 2002). For example, weekly church attendance has been associated with longer life expectancy, lower physical disabilities, faster recoveries from depression and overall, a greater life satisfaction (Hall, Meador & Koenig, 2008). However, critics notice that while certain factors are associated with each other, the operationalization of religion or spirituality is often imprecise and lacking consensus

(Hall, Meador & Koenig, 2008; Moberg, 2002). So far, there is no comprehensive review of religious measurement published in literature. While Hall, Meador and Koenig attempted to assemble all religious measurements, they admit that their review regarding these measurements is biased and therefore not a systematic review of each instrument (Hall, Meador & Koenig, 2008).

The most looked at measurement for religiousness is church attendance (Hall, Meador & Koenig, 2008). However, this measurement only provides one aspect of the many spiritual disciplines and practices a Christian could practice. While one Christian might not see the value of going to church, another Christian recognizes the value of weekly church attendance. Some Christians might go to church just for social reasons, while others go for religious reasons.

Another often-used measurement is private religiousness, also called non-organizational religiousness, which is more similar to the spiritual disciplines. It includes private prayer, meditation and Bible reading or study (Hall, Meador & Koenig, 2008). While church attendance has often been associated with health, private religiousness has less links with health. However, this thesis does not look into the effect of these practices on health. Furthermore, as self-tracking applications often encourage users to change their behaviour, it is most logical to look at the current behaviour of Christians, according to the spiritual disciplines introduced in the theory. Lastly, Hall, Meador and Koenig (2008) argue that privately defined religiousness can be quite subjective. However, by incorporating the operational definitions in the questions, the validity and objectivity of the questions is assured, which was a crucial next step that was missing, according to Hall, Meador and Koenig (2008).

All measures employed surrounding the spiritual disciplines are based on self-reporting, which has somehow limited the reliability and validity (Hadaway, Marler & Chaves, 1993), since participants are prone to social desirability. However, a question was added to limit social desirability, where the participants had to guess how often other Christians used spiritual applications to maintain their faith rituals. Furthermore, other scholars believe that the magnitude of overreporting is modest (Hout & Greely, 1998). The participants that do exaggerate their spiritual activities on their digital device or in daily life may simply reflect their religious commitment (Benjamins, Trinitapoli & Ellison, 2006; Hadaway, Marler & Chaves, 1998).

3.3.1. Spiritual disciplines

In order to provide a valid and objective definition for each spiritual discipline, definitions from academic literature were accumulated and summarized. The eventual definitions, as summarized here, were provided in the survey, so participants knew what was meant with terms as prayer or worship.

First of all, prayer is a complex construct (Laird, Snyder, Rapoff & Green, 2004). It has been described in many different ways and exists out of different types including adoration, thanksgiving

and supplication (Laird, Snyder, Rapoff & Green, 2004). It can also occur in several manners, spoken, silent or in meditation. So far, it is most often measured through frequency. In the survey, the operational definition used is: “For this survey, we are referring to focused prayer. This may include spoken or silent prayer and forms of meditation.”

The second spiritual discipline is worship. In Hebrew, the word worship also means work and therefore, this spiritual discipline needed a clear definition of what the researched intended to measure. While worshipping is often done in church services, it is also a frequent occurrence in private spaces, as Patrick R. Keifert (1992) argues. According to James F. White, the most attractive definition of Christian worship is: “... that we, in turn, talk to Him in [words] and songs of praise.” (White, 2000). Therefore, the operational definition mentioned in the survey is: “For this study, we are referring to times of focused worship that includes devotional times or times of sung or spoken praise that lasts more than a few minutes, outside of organized church services.”

The third spiritual discipline is confession. According to Murray-Swank, McConnell and Pargament (2007), confession entails the behavior where a person acknowledges the violation of a standard within their spirituality and seeks forgiveness for said violation. Confession has been practiced both publicly and privately within Christianity. As there are many forms or denominations in Christianity, there have also been many forms of confession. Firstly, in Anglican, Lutheran and Catholic churches there are still opportunities for formal one-on-one confession (Murray-Swank et al., 2007). Secondly, some Protestant churches encourage members of the church to confess their sins to one another. Thirdly, all Christians are expected to confess their sins to God (Murray-Swank et al., 2007). Therefore, the following operational definition was included in the survey: “For this survey, we are referring to times in which you confess your sins and shortcomings to God, a priest or pastor, or fellow Christians.”

Another spiritual discipline included in the survey is Bible reading. According to Peace (1998), the Bible stands at the center of Christianity. An often-held discussion surrounding Bible reading is how it should be done. The most common term for studying or reading the Bible is *lectio divina*, a Latin phrase that can best be translated to spiritual or divine reading (Peace, 1998). For this survey, the researcher wanted to find out how often a respondent took the time to read the Bible in a contemplative manner. To avoid confusion about the words *lectio divina*, contemplative or divine reading, a more practical operational definition was formed: “For this survey, we are referring to times of focused Bible reading that lasts more than a few minutes.”

The fifth spiritual discipline is journaling, where Christians have the opportunity to reflect and contemplate on their lives by practicing artistic activities such as writing in a journal or drawing (Martin, 1992). It has also been seen as a form of self-examination where one can reflect upon the day. Furthermore, it could give insights in the condition of one’s spiritual journey. Nowadays,

Christian journaling is also found online, which is why blogging for spiritual purposes was also included in the operational definition mentioned in the survey: “For this survey, we are referring to times of in which you write (such as in a diary) or engage in artistic activities (painting or drawing) as a spiritual activity. This may include personal blogging online for spiritual purposes.”

The most often measured spiritual discipline is church attendance (Hall, Meador & Koenig, 2008). In 1991, seven out of eight self-proclaimed born-again Christians attended church (Whitney, 1996). It is hence the spiritual discipline that is most often adhered to by Christians. According to Tom Smith attending church can have several definitions, which can allow for over- or underreporting (Smith, 1998). Therefore, it was of the essence that the operational definition for attending church was incorporated in the survey. Attending church, according to the definition of Smith, is attending a regular, weekly worship service at a church or synagogue, for example mass or a Sunday morning service. Therefore, the following operational definition was used: “For this survey, we are referring to attendance at regularly held church services that meet at an appointed location on a routine basis.”

However, there are also other forms of attending religious services outside the regularly held church services that are most known to be worship services every Sunday morning (Smith, 1998). This is what we refer to as fellowship, as Christians come together in other forms and groups (Slick, n.d.). Examples of these are in Bible studies, prayer meetings or church band rehearsals. In all cases, they attend a religious service of some sort, but in different settings. Hence, the operational definition included in the survey is: “For this survey, we are referring to attendance at fellowship groups, Bible studies, prayer meetings, women or men’s group, church choir rehearsals, youth groups and other similar events outside the regularly held church services.”

The last spiritual discipline is fasting. According to Trepawnoski and Bloomer (2010), fasting is defined as the abstention of all food or prohibited foods and drinks. It has also been seen that people fast ‘digitally’, refraining themselves from using social media like Facebook (DeYoung, 2012; Ross Jr., 2009). This was summarized in the operational definition as follows: “For this survey, we are referring to times of fasting that includes abstaining from food, liquids and/or other normal activities for a period of time for spiritual purposes.”

3.3.2. Spiritual growth through applications and value of applications

In order to measure the spiritual growth through the Christian applications the participants used and the value of the applications, three types of questions were formulated based on the conceptual model by Hsiao, Chang and Tang (2016). In their research framework, they outlined their hypotheses on the basis of customer value perspectives. The value perspectives were separated in utilitarian motivation, hedonic motivation and social influence. Whereas utilitarian motivation leans itself to the perceived usefulness of the app, hedonic motivation is directed at

perceived enjoyment. This could be best compared to the instrumental and ritualistic purposes introduced by Hiniker, Patel, Kohno and Kientz (2016), which have been elaborated on in the theoretical framework. Lastly, the participants were asked whether the apps helped them to share their faith or the content in the application with others. Through this, social ties and social influence was established in the questionnaire. In Hsiao, Chang and Tang (2016), user satisfaction and habitual use have been successfully explained by these three categories. Just as the questionnaire shared with Hsiao, Chang and Tang (2016), participants had to self-report their motivation and their perceived value of the application. Furthermore, participants had to rate the perceived usefulness, perceived enjoyment and social ties on 7-point Likert scales.

3.4 Survey

The survey was shared with a direct link, recognizing the IP-address of the respondent and thus immediately changing the language of the survey to the language of the country they were in at the moment of filling in the survey. In the survey itself, they could change the language to the language they felt most comfortable with.

The survey started with a short introduction, explaining the goal of the study, the expected time it would take a respondent to fill in the survey and several options for contacting the researcher. Participants were asked for their nationality, Christian tradition and if applicable, denomination. Participants were allowed to say they were not a Christian, immediately directing them to a thank you-message, ending the survey for these participants there. This was the case for two participants, who were subsequently deleted from the collected data.

Then, participants were asked how often they practice the spiritual disciplines. When having asked about their demographics and their frequency of practicing the spiritual disciplines, it was deemed necessary to look into their usage of digital devices. Following Boruff and Storie in their survey on usage of mobile devices, the target population was asked which digital devices they owned and how often they used them (Boruff & Storie, 2014). According to Lee, Chang, Lin and Cheng (2014), it is also necessary to find out how people rely on their digital devices. Therefore, a Likert-scale was added to find out how people rely on their digital devices.

In quantification of the self, it has been acknowledged that users of digital devices tend to measure themselves in several areas of their lives (Lupton, 2014). Therefore, a question was added to see whether Christians who monitor themselves on spirituality, also tend to monitor their well-being. Subsequently, participants were asked how often they used Christian applications on a weekly basis and which apps they used. Next to that, the participants were also asked whether they used other digital practices to support their faith, such as online sermons, podcasts or church newsletters.

Since spirituality is a subjective and possibly vulnerable subject, respondents might want to over-report their usage of Christian applications. Therefore, participants were asked to rate how often other Christians, similar to them, used Christian applications on a weekly basis, in order to limit social desirability bias.

Before asking the participants for demographic information, the participants were asked what kind of spiritual applications they used, referring back to the categories of the spiritual disciplines. For each category the participants selected, a few questions were displayed about said categories. Participants were asked to self-report their perceived value of the spiritual applications that focused on a spiritual discipline. Furthermore, they were asked to rate the spiritual applications of said category on user-friendliness, entertainment, encouragement in spiritual growth and information.

Users of spiritual applications believe the applications to be easy to use, be convenient and bring entertainment (Piper, 2016). According to Turner (2014), these spiritual applications also offer encouragement in spiritual growth, as is perceived by the users.

Subsequently, participants were also asked to rate how the spiritual applications helped them. It has been reported that spiritual applications help users to share with others, read the Bible, memorize Bible verses, maintain rituals, remember prayer requests and learn (Miller, 2014; Piper, 2016). Furthermore, spiritual applications that foster the ability to self-monitor, help users to set goals and see progress (Ramanathan, Swendeman, Comulada, Estrin & Rotheram-Borus, 2013). Users also mentioned the opportunity to self-monitor their behaviour with smartphone applications (Aguilar-Martinez et al., 2014). Lastly, Cep argued that users believe spiritual applications help them to increase in spiritual awareness. The perception and effects of the applications, according to users, have been placed in the survey in such a way that the target audience can rate each perception and effect for them personally.

Lastly, several demographic questions were incorporated. These questions covered sex, age, annual household income, household composition, highest level of education and responsibilities in church. Finally, participants were asked how they accessed the survey.

3.5 Data analysis

The data has been collected through a survey, which has been distributed online via Facebook groups and pages, using convenience and snowball sampling. The survey has been available in several languages: English, Dutch, Spanish, French and German, to limit a language barrier for Latin American and European participants. It has been created on Qualtrics and has been analysed via SPSS. The data has been collected through closed-ended questions and Likert scales. Participants have been asked about demographics, their Christian disciplines, their use of spiritual applications and how they value their usage of spiritual applications.

The data has been analyzed with SPSS. Since the researcher has the most experience with this analysis tool, it is the most straightforward choice. However, SPSS is also widely used for statistical analysis in social sciences and is therefore a reliable tool. All the necessary statistics, such as descriptive and bivariate statistics are present in SPSS, which makes the tool suitable for the analysis of this thesis.

3.4.1. Pre-test, data cleaning and preparation for the data

The survey first came online for a pre-test, which ran from the 1st of April until the 10th of April, collecting six responses from higher educated participants, who spoke fluent English and have certain experience or knowledge in the field of communication. Next to that, they were all Christians who actively used Christian apps. With their feedback and response, face validity was assured. The actual survey came online the 11th of April and was active for a month, resulting in 501 participants.

The data was extracted the 11th of May, in order to have enough time to analyse the results. Out of the 501 responses, 385 participants finished the survey, making the response rate 71.45 per cent. However, some cases needed to be excluded from the analysis, since some participants remarked they were not a Christian or did not use any digital devices. This resulted in a final sample of 321 participants.

Furthermore, during the process of data cleaning, the open answers were examined and if necessary added to the right values, or new values were added. Lastly, new variables were computed based on the construct they measured.

3.4.2. Validity and reliability

In this thesis, external validity was established by the sample, which is in many forms an accurate representation of the population. The median age of the participants is 37 ($M = 39.73$, $SD = 16.23$). According to Statista, the median age of the resident population in the United States and European countries is between 35 and 40. Furthermore, the median age of Internet users in the United States in 2015 was 42.4, much younger than radio, magazine, TV or newspaper users (Statista, 2015). While app and smartphone usage is equal among men and women, Pew Research Center pointed out that western women use social media more often than men (Pew Research Center, 2017). Since the survey was mainly spread through social media, it was expected that more women than men would fill in the survey. This was also reflected in the data, as 60 per cent of the participants were female ($M = 1.60$, $SD = .49$). Next to that, many of the denominations in the Protestant tradition were represented in the sample. However, there were almost no Catholic or Orthodox Christians who filled in the survey, as well as a few participants from Indonesia, India or Suriname. In order to

create a more valid sample, the Catholic and Orthodox Christians were filtered out of the sample, as well as participants from non-western countries.

Face validity is also ensured through the pre-test. As has been explained before, the pre-test was taken by six high-educated Christians who all had experience in the field of communication to a certain extent. Furthermore, they were from different Christian backgrounds and differed in ages. Their response and feedback ensured face validity for this thesis.

Furthermore, instrument and construct validity was measured through exploratory factor analysis. Prior to running this test, examination of the data indicated that most variables were not normally distributed. While factor analysis assumes normality, the deviations were not considered problematic because of the robust nature of factor analysis (Allen & Bennett, 2010). The data did meet the assumption of independence, since the participant only participated once and did not influence the participation of others. Furthermore, it closely met the assumption of sample size, since the sample is larger than 100 for the usage of Bible reading applications and close to a 100 for the usage of prayer and worship applications. This means that no factor analysis was conducted for the usage of church, fellowship, fasting, journaling and confession applications. For this factor analysis, principal components analysis was chosen. As Varimax is the most commonly used rotation method in science research, this rotation was chosen (Allen & Bennett, 2010).

First, the factorability of the 16 items related to the value of prayer was examined. All items correlated at least .3 with at least one other item, suggesting factorability. The Kaiser-Meyer-Olkin measure of sampling adequacy was .81, above the recommended value of 0.6. Bartlett's test of sphericity was significant ($\chi^2(120) = 693.32, p < .05$). Finally, the communalities were all above .3 (see Table 3.1).

The principal component analysis of the variables related to the value of prayer indicates that the 16 items together form a four dimensional scale: four components have an eigenvalue above 1. KMO and Bartlett's Test Component 1 has an eigenvalue of 6.30, explaining 39 per cent of the variance, component 2 an eigenvalue of 2.11, component 3 an eigenvalue of 1.29 and component 4 an eigenvalue of 1.08. However, after the first component there is a clear bend in the scree plot. All items positively correlate with the first component, whereby the variable Increase spiritual self-awareness has the highest correlation (component loading is 0.70). However, all other variables have a correlation very similar to Increase spiritual self-awareness, all linking to the effect of these applications. The scale has good reliability, Cronbach's alpha = 0.89. The scale appears to measure spiritual growth through the use of the applications, instead of the expected value of spiritual applications.

Table 3.1: Spiritual growth through prayer applications: Item loadings on a one-factor principal components solution

Items	Spiritual growth
Self-reported value	.631
User-friendliness of app	.541
Engaging/entertaining/fun	.646
Encouraging spiritual growth	.646
Informative	.630
App helps to share faith	.676
App helps to share content	.695
Apps help to read the Bible	.611
Apps help to maintain faith rituals	.534
Apps help to memorize Bible verses	.614
Apps help to remember prayer requests	.419
Apps help to learn more about faith	.666
Apps help to set faith goals	.680
Apps help to see my progress	.646
Apps help to monitor Christian activities	.611
Apps help to increase self-awareness	.697
<i>Cronbach's alpha</i>	.89
<i>Eigenvalue</i>	6.30

For reading the Bible, the factorability of the 16 items related to the value of Bible reading was examined. All items correlated at least .3 with at least one other item, suggesting factorability. The Kaiser-Meyer-Olkin measure of sampling adequacy was .89, above the recommended value of 0.6. Bartlett's test of sphericity was significant ($\chi^2(120) = 1795.22, p < .05$). Finally, the communalities were all above .3 (see Table 3.2).

The principal component analysis of the variables related to the value of Bible reading indicates that the 16 items together form a three dimensional scale: three components have an eigenvalue above 1. KMO and Bartlett's Test Component 1 has an eigenvalue of 6.48, explaining 40 per cent of the variance, component 2 an eigenvalue of 1.61 and component 3 an eigenvalue of 1.25. However, after the first component there is a clear bend in the scree plot. All items positively correlate with the first component, whereby the variable Self-monitor faith activities has the highest correlation (component loading is 0.74). However, all other variables have a correlation very similar to this variable, all linking to the effect of these applications. The scale has good reliability, Cronbach's alpha = 0.90. The scale appears to measure spiritual growth through the use of the applications, instead of the expected value of spiritual applications.

Table 3.2: Spiritual growth through Bible reading applications: Item loadings on a one-factor principal components solution

Items	Spiritual growth
Self-reported value	.630
User-friendliness of app	.540
Engaging/entertaining/fun	.685
Encouraging spiritual growth	.711
Informative	.584
App helps to share faith	.692
App helps to share content	.614
Apps help to read the Bible	.443
Apps help to maintain faith rituals	.601
Apps help to memorize Bible verses	.616
Apps help to remember prayer requests	.526
Apps help to learn more about faith	.596
Apps help to set faith goals	.709
Apps help to see my progress	.712
Apps help to monitor Christian activities	.744
Apps help to increase self-awareness	.696
<i>Cronbach's alpha</i>	.90
<i>Eigenvalue</i>	6.48

For worship, the factorability of the 16 items related to the value of worship was examined. All items correlated at least .3 with at least one other item, suggesting factorability. The Kaiser-Meyer-Olkin measure of sampling adequacy was .85, above the recommended value of 0.6. Bartlett's test of sphericity was significant ($\chi^2(120) = 705.55, p < .05$). Finally, the communalities were all above .3 (see Table 3.3).

The principal component analysis of the variables related to the value of worship indicates that the 16 items together form a three dimensional scale: three components have an eigenvalue above 1. KMO and Bartlett's Test Component 1 has an eigenvalue of 6.48, explaining 43 per cent of the variance, component 2 an eigenvalue of 2.25 and component 3 an eigenvalue of 1.18. However, after the first component there is a clear bend in the scree plot. All items positively correlate with the first component, whereby the variable Set faith goals has the highest correlation (component loading is 0.78). However, all other variables have a correlation very similar to this variable, all linking to the effect of the applications. The scale has good reliability, Cronbach's alpha = 0.91. The scale appears to measure spiritual growth through the use of the applications, instead of the expected value of spiritual applications.

Table 3.3: Spiritual growth through worship applications: Item loadings on a one-factor principal components solution

Items	Spiritual growth
Self-reported value	.345
User-friendliness of app	.384
Engaging/entertaining/fun	.640
Encouraging spiritual growth	.597
Informative	.626
App helps to share faith	.747
App helps to share content	.712
Apps help to read the Bible	.556
Apps help to maintain faith rituals	.610
Apps help to memorize Bible verses	.709
Apps help to remember prayer requests	.707
Apps help to learn more about faith	.737
Apps help to set faith goals	.775
Apps help to see my progress	.766
Apps help to monitor Christian activities	.725
Apps help to increase self-awareness	.644
<i>Cronbach's alpha</i>	.91
<i>Eigenvalue</i>	6.48

While the other scales cannot be tested for validity through exploratory factor analysis because of their low sample size, they can be tested for reliability. The attending church subscale consisted of 16 items ($\alpha = .91$). This scale is considered adequate for research purposes. The scale would not improve if items were removed; therefore all items of the scale were kept. The fellowship subscale consisted of 16 items ($\alpha = .95$) and the worship subscale consisted of 16 items as well ($\alpha = .91$). As no respondent used an application for fasting, these variables were deleted. The journaling subscale consisted of 16 items ($\alpha = .91$) and the last subscale, confession, also consisted of 16 items

($\alpha = .96$). Therefore, it can be assumed that all subscales concerning the perceived value of spiritual applications are reliable. Since only one instrument measured the frequency of Christian application usage and each spiritual discipline, the internal reliability could not be measured.

4. Results

In this chapter the results are reported, related to the research question and the hypotheses. In the next chapter, the findings will be discussed, together with the literature elaborated on in the theoretical framework. This section will start by introducing demographic characteristics of the sample, followed by the hypotheses.

4.1 Demographic characteristics

The participants ($N = 321$) in the survey are on average 39.73 years old ($SD = 16.23$). Out of the participants, 191 female (60 per cent) and 130 male (40 per cent) completed the survey. Most participants came from the Netherlands ($N = 143$, 47 per cent), the United Kingdom ($N = 77$, 26 per cent), the United States of America ($N = 37$, 12 per cent) and Canada ($N = 20$, 7 per cent). The resting 8 per cent came from France, Germany, Spain, Ireland, Belgium, Australia, New-Zealand and Denmark. On average, they had a household composition of 3.22 people ($SD = 5.73$). Their annual household income was very diverse, with most people earning between \$0 and \$60 000 US dollars ($N = 173$, 75 per cent). The participants were diversely educated, as 52 participants finished high school (17 per cent), 78 finished college or higher education (26 per cent), 74 finished their Bachelor's degree (25 per cent) and 76 finished their Master's Degree (25 per cent).

Since only Protestant participants were selected, all filled in their more specific denomination. Most participants were Anglican or Episcopal ($N = 79$, 26 per cent), Reformed ($N = 65$, 22 per cent), Evangelical ($N = 62$, 21 per cent), non-denominational ($N = 29$, 10 per cent) and Baptist ($N = 24$, 8 per cent). Other participants were Lutheran, Methodist, Pentecostal, Presbyterian, had united or merged denominations or were Plymouth Brethren.

The participants had very diverse responsibilities in their church. Most participants did not have responsibilities at the moment ($N = 69$, 23 per cent). Others were contributing members ($N = 66$, 22 per cent), small group or youth group leader ($N = 59$, 20 per cent), had occasional duties ($N = 35$, 12 per cent) or were worship leaders or non-ordained ministers or pastors ($N = 33$, 11 per cent). Some were ordained ministers or pastors ($N = 32$, 11 per cent) or were denominational leaders ($N = 8$, 3 per cent).

Participants were also asked about their usage of mobile devices. Most participants used smartphones ($N = 308$, 96 per cent), while less participants used tablets ($N = 172$, 54 per cent) or smartwatches ($N = 15$, 5 per cent). On a Likert scale of 1 to 7, participants reported a high usage of smartphones on a daily basis ($M = 5.85$, $SD = 1.21$). Participants who reported to use tablets were less inclined to use tablets as much on a daily basis ($M = 4.18$, $SD = 1.71$). Participants who used smartwatches differed in their usage of smartwatches on a daily basis ($M = 5.17$, $SD = 2.04$).

Many participants used their mobile digital devices in order to monitor their well-being. Most participants monitored their exercise ($N = 112$, 37 per cent), others monitored time management ($N = 91$, 30 per cent) and some measured their sleep ($N = 43$, 14 per cent) and menstrual cycles ($N = 43$, 14 per cent). Other participants measured their calories or food intake ($N = 42$, 14 per cent), weight ($N = 31$, 10 per cent), blood pressure or heart rate ($N = 23$, 8 per cent) or mood ($N = 6$, 2 per cent). 107 participants (35 per cent) did not monitor their well being through mobile digital devices.

Most participants used Christian applications on their digital device every day ($N = 104$, 34 percent). On average, the participants used Christian applications 6.13 times on a weekly basis ($SD = 4.84$). Many participants used other digital practices to support their faith, like e-mails with Christian subjects ($N = 120$, 40 per cent), online sermons ($N = 101$, 33 per cent), online Christian magazines ($N = 96$, 32 per cent), church digital newsletters and music streaming services for worship purposes ($N = 107$, 35 per cent). Only 34 participants (11 per cent) reported that they did not use digital practices to support their faith.

4.2. Spiritual disciplines, perceived spiritual growth and perceived value

The participants filled in their practice of spiritual disciplines per day, per week and per month. On average, participants prayed 3.45 times a day ($SD = 1.63$). On average, they worshipped outside of church services 4.23 times a week ($SD = 3.56$) and confessed 3.90 times per week ($SD = 3.10$). The participants read the Bible 5.80 times a week ($SD = 3.60$) on average and practices journaling 2.65 times a week ($SD = 2.54$) on average. Church attendance, fellowship and fasting were filled in on a monthly basis. On average, participants went to church 5.80 times a month ($SD = 3.09$) and went to fellowship 3.98 times a month ($SD = 2.61$). Lastly, they fasted on average 1.26 times a month ($SD = 1.14$)

Table 4.1: Practice of spiritual disciplines

	Mean	Standard deviation	N
Prayer (per day)	3.45	1.63	282
Worship (per week)	4.23	3.56	296
Confession (per week)	3.90	3.10	279
Bible reading (per week)	5.80	3.60	306
Journaling (per week)	2.65	2.54	306
Church attendance (per month)	5.80	3.09	318
Fellowship (per month)	3.98	2.61	312
Fasting (per month)	1.26	1.14	269

Participants were asked to rate several items on a Likert scale of 1 to 7 that led to the perceived spiritual growth per group of applications. On average, the perceived spiritual growth through the use of prayer applications was 4.13 (SD = 1.07). The perceived spiritual growth through the use of Bible applications was rated a 4.36 on average (SD = 1.08). Participants rated the perceived spiritual growth through the use of church apps as 3.27 (SD = 1.08). Perceived spiritual growth through fellowship apps was rated a 3.74 (SD = 1.57) on average. Worship apps were rated with a 4.02 (SD = 1.19) on average. On average, the perceived spiritual growth through journaling apps was rated with a 4.01 (SD = 1.42). Lastly, perceived spiritual growth through confession apps was rated with a 3.79 (1.37) on average.

Table 4.2: Perceived spiritual growth through spiritual applications

	Mean	Standard deviation	N
Prayer applications	4.13	1.07	86
Worship applications	4.02	1.19	82
Confession applications	3.79	1.37	7
Bible reading applications	4.36	1.08	268
Journaling applications	4.01	1.42	25
Church attendance applications	3.27	1.08	6
Fellowship applications	3.74	1.57	31

Participants were asked to rate the perceived value of spiritual applications on a Likert scale of 1 to 7. On average, the perceived value of prayer applications was 5.63 (SD = 1.40). The perceived value of Bible applications was rated a 5.57 on average (SD = 1.41). Participants rated the perceived value of church apps as 4.50 (SD = 1.76). Perceived value of fellowship apps was rated a 4.84 (SD = 1.75) on average. Worship apps were rated with a 5.20 (SD = 1.51) on average. On average, the perceived value of journaling apps was rated with a 5.12 (SD = 1.86). Lastly, perceived value of confession apps was rated with a 4.84 (1.75) on average.

Table 4.3: Perceived value through spiritual applications

	Mean	Standard deviation	N
Prayer applications	5.63	1.40	86
Worship applications	5.20	1.51	82
Confession applications	5.29	1.25	7
Bible reading applications	5.57	1.41	268
Journaling applications	5.12	1.86	25
Church attendance applications	4.50	1.76	6
Fellowship applications	4.84	1.75	31

4.3 Overview of the findings

Table 4.4: Overview of the findings

Hypothesis	Test outcome
H1: People who indicate a higher usage of spiritual applications to self-monitor faith, perceive more spiritual growth through prayer applications.	Not supported
H2: People who perceive more spiritual growth through prayer applications, practice spiritual disciplines more often.	Not supported
H3: People who indicate a higher usage of spiritual applications to self-monitor faith, perceive more spiritual growth through Bible reading applications.	Supported
H4: People who perceive more spiritual growth through Bible reading applications, practice spiritual disciplines more often.	Supported
H5: People who indicate a higher usage of spiritual applications to self-monitor faith, perceive more spiritual growth through worship applications.	Supported
H6: People who perceive more spiritual growth through worship applications, practice spiritual disciplines more often.	Not supported

Hypothesis 1

In order to perform linear regression analysis, several assumptions were met. In order to meet the assumption of normal distribution, all variables were standardized and checked for normal distribution. The regression model of the perceived spiritual growth through prayer applications as the dependent variable and the frequency Christian applications are used as the independent variables is not significant, $F(1, 72) = 1.348$, $p > 0.05$, with an R^2 of .018. The regression model is thus not useful for predicting the perceived spiritual growth through prayer applications. Therefore, hypothesis 1 is rejected.

Hypothesis 2

Performing regression analysis with perceived spiritual growth through prayer applications as the independent variable and the practice of spiritual disciplines had a similar outcome. The regression model is not significant, $F(1, 77) = .971$, $p > 0.05$, with an R^2 of .012. The regression analysis was run again with just the spiritual discipline prayer as the dependent variable. However, the regression model is still not significant, $F(1, 69) = 1.881$, $p > 0.05$, with an R^2 of .027. Therefore, hypothesis 2 is rejected.

Table 4.5: Summary of results

Paths	Model specifications	Beta coefficient	Percentile confidence intervals	
			Lower	Upper
IV to mediators (a paths)	Frequency → perceived spiritual growth prayer applications	.136	-.089	.338
	Frequency → perceived spiritual growth Bible applications	.226***	.099	.337
	Frequency → perceived spiritual growth worship applications	.339**	.122	.561
Direct effects of mediators on DV (b paths)	Perceived spiritual growth prayer applications → practice spiritual disciplines	.112	-.118	.349
	Perceived spiritual growth Bible applications → practice spiritual disciplines	.132*	.009	.247
	Perceived spiritual growth worship applications → practice spiritual disciplines	.085	-.148	.324
Direct effects of IV on DV (c paths)	Frequency → practice prayer	.188**	.065	.299
	Frequency → practice Bible reading	.436***	.445	.739
	Frequency → practice worship	.156*	.034	.262
	Frequency → practice journaling	.140*	.026	.296
	Frequency → practice confession	.281***	.156	.383

	Frequency → practice fellowship	.213***	.097	.325
	Frequency → practice church attendance	.056	-.062	.173
	Frequency → practice fasting	.236***	.093	.291
	Frequency → practice spiritual disciplines	.240***	.118	.326
Direct effects of IV on DV when mediators are included (c'paths)	Frequency → practice prayer	.045	-.189	.271
	Frequency → practice Bible reading	.464***	.458	.774
	Frequency → practice worship	.025	-.204	.249
R2	Perceived spiritual growth prayer applications	.018		
	Perceived spiritual growth Bible reading applications	.226		
	Perceived spiritual growth worship applications	.115		
	Practice spiritual disciplines	.057		

Note: *** $p < .001$, ** $p < .01$, * $p < .05$
Sample size = 321
Level for confidence intervals = 95%

Hypothesis 3

The regression model of the perceived spiritual growth through Bible reading applications as the dependent variable and the frequency Christian applications are used as the independent variables is significant, $F(1, 243) = 13.103$, $p < 0.001$, with an R^2 of .051. The regression model is thus useful for predicting the perceived spiritual growth through Bible reading applications. However, it should be stated that the predicting power is weak, 5 per cent of perceived spiritual growth through Bible reading applications can be explained by the frequency respondents use Christian applications. The frequency Christian applications are used, $b^* = 0.23$, $t = 3.62$, $p < 0.001$, 95% CI [0.10, 0.34] has a weak, but positive relation with the perceived spiritual growth through Bible reading applications. For 1 point of additional Christian application usage, the estimated perceived spiritual growth increases by 0.23, which was measured through a Likert scale going from 1 (perceived no spiritual growth) to 7 (perceived a lot of spiritual growth). Hence, hypothesis 3 is supported.

Hypothesis 4

Performing regression analysis with perceived spiritual growth through Bible reading applications as the independent variable and the practice of spiritual disciplines had a similar outcome. The regression model is significant, $F(1, 252) = 4.493$, $p < 0.05$, with an R^2 of .018, although the predictive power is weak. 2 per cent of the practice of spiritual disciplines could be explained by the perceived spiritual growth through Bible reading applications. The spiritual growth through Bible reading applications, $b^* = .13$, $t = 2.12$, $p < 0.05$, 95% CI [.01, .25] has a weak, but positive relation with the practice of spiritual disciplines. For 1 point of perceived spiritual growth, the estimated practice of spiritual disciplines increases with 0.13. The regression analysis was also run with just the spiritual discipline Bible reading as the dependent variable, to see if the model would be more significant. This was the case, $F(1, 230) = 6.31$, $p < 0.05$, with an R^2 of .027. However, it should be stated that the predictive power is weak, as only 3 per cent of the practice of Bible reading can be explained through the perceived spiritual growth through Bible reading applications. The spiritual growth through Bible reading applications, $b^* = .16$, $t = 2.51$, $p < 0.05$, 95% CI [.03, .29] has a weak, but positive relation with the practice of Bible reading. For 1 point of perceived spiritual growth, the estimated practice of Bible reading, measured on a weekly basis, increases with 0.16. Therefore, hypothesis 4 is supported.

Hypothesis 5

The regression model of the perceived spiritual growth through worship applications as the dependent variable and the frequency Christian applications are used as the independent variables is significant, $F(1, 74) = 9.60$, $p < 0.05$, with an R^2 of .12. The regression model is thus useful for predicting the perceived spiritual growth through worship applications. The predictive power is

weak to moderate, as 12 per cent of perceived spiritual growth through worship applications can be explained by the frequency respondents use Christian applications. The frequency Christian applications are used, $b^* = 0.34$, $t = 3.10$, $p < 0.05$, 95% CI [.12 , .56] has a moderate, but positive relation with the perceived spiritual growth through worship applications. For 1 point of additional Christian application usage, the estimated perceived spiritual growth increases by 0.34, which was measured through a Likert scale going from 1 (perceived no spiritual growth) to 7 (perceived a lot of spiritual growth). Hence, hypothesis 5 is supported.

Hypothesis 6

Performing regression analysis with perceived spiritual growth through worship applications as the independent variable and the practice of spiritual disciplines had a different outcome. The regression model is not significant, $F(1, 76) = .548$, $p > 0.05$, with an R^2 of .007. The regression analysis was run again with just the spiritual discipline worship as the dependent variable. However, the regression model is still not significant, $F(1, 73) = .778$, $p > 0.05$, with an R^2 of .011. Therefore, hypothesis 6 is rejected.

4.4 Mediation effects

In this subchapter, the mediation effects of perceived spiritual growth through prayer, Bible reading and worship applications are reported with the frequency the Christian applications were used as the independent variables and the practice of spiritual disciplines as dependent variable. An overview of the regression analyses can be found in Table 4.6.

According to Baron and Kennedy (1986), three requirements or assumptions must be fulfilled in order to state that a variable is a mediator. Firstly, the independent variable should significantly predict the dependent variable (c path). Next, the mediator variable should significantly predict the dependent variable (b path). Lastly, when the mediator is added to the model, the relationship between the independent and dependent variables (c path) should be reduced (c' path) (Baron & Kennedy, 1986).

For the perceived spiritual growth through prayer and worship the requirements were not met, as the mediator variables did not significantly predict the dependent variable (b path), as can be seen in Table 4.5. For the perceived spiritual growth through Bible reading the first two requirements were met, but the relationship between the independent and the dependent variable was not reduced, but increased, suggesting suppression instead of mediation.

Table 4.6: Mediation effects of perceived spiritual growth on the practice of spiritual disciplines

	Model 1	Model 2	Model 3
Frequency of application usage	.045	.464***	.025
Perceived growth through prayer applications	.141		
Perceived growth through Bible reading applications		.059	
Perceived growth through worship applications			.084
<i>R</i> ²	.024	.231	.009
<i>F</i>	.782	33.489***	.327

Note: *** $p < .001$.

4.5 Further findings

In this subchapter the further findings are discussed. In order to create a clearer view of the independent and dependent variable, the direct correlations between the frequency Christian applications are used and the practice of spiritual disciplines was measured. This showed that all correlations between the frequency Christian applications are used and the spiritual disciplines were significant, instead of church attendance (see Table 4.5). Hence, all the spiritual disciplines except for church attendance could all be partly explained through the frequency Christian applications were used.

5. Discussion and conclusion

In this chapter, the results of the data analysis are interpreted and the literature introduced in the theoretical framework is connected with the results. Furthermore, the research questions are answered and the managerial implications are outlined. Later, the findings are summarized in the conclusion, where the limits of this thesis are elaborated on. Lastly, the researcher gives suggestions for future research. As this thesis was an exploratory study, it might inspire scholars to research this subject further in many different ways.

5.1 Interpretation of the results

One of the goals of this study was to find out how the frequency of Christian application usage would influence perceived spiritual growth through the use of applications. As Cep (2014) wrote about SoulPulse in 2014, the Christian application intends to measure spiritual growth. It allows for self-tracking and lets the user realize his or her behaviour (Cep, 2014). The eventual goal of self-monitoring applications is to let users work on their goals and build new habits, such as spiritual growth. In the results, it was found that perceived spiritual growth through prayer applications could not be explained through the frequency the respondents used Christian applications. Even if the results were significant, the perceived spiritual growth could only account for 2 per cent of the variance. While regression cannot predict causation, but rather predicts the correlation, it could be assumed that users do not use Christian applications more often if they perceive spiritual growth. However, the results did show that the practice of prayer on a daily basis can for 4 per cent be explained through the frequency Christian applications were used. The occurrence of these low percentages were surprising, as it was expected that respondents mainly used prayer applications in order to grow and practice prayer more often. As the respondents rated the value of prayer applications quite highly on a scale of 1 to 7 ($M = 5.63$, $SD = 1.40$) and reported a medium perceived spiritual growth through these apps on a scale of 1 to 7 ($M = 4.13$, $SD = 1.07$), it was expected that more of the variance in the perceived spiritual growth could be explained through the frequency Christians were using the applications. If perceived spiritual growth through prayer applications cannot be explained through the frequency Christians are using the applications, which happened on almost a daily basis, it leads to wonder what can then explain the perceived spiritual growth through prayer applications. It could be that while prayer applications nudge towards perceived spiritual growth, they do not actually help Christians to pray more often. However, it could be that the prayer applications simply help the users be more conscious of their prayer life, while not having a direct effect on the practice of prayer.

It was also expected that the perceived spiritual growth through prayer applications would have a significant correlation with the practice of prayer. However, the regression model turned out to be insignificant. The practice of spiritual disciplines could not be explained through the perceived spiritual growth of prayer applications, neither could the practice of prayer be explained through the perceived spiritual growth. Hence, respondents would not pray more often if they perceived spiritual growth through the prayer applications. This is surprising, as it seems that there would be a link between perceived spiritual growth, or their goals and habits, and their actions.

Next to prayer applications, Bible reading applications were also looked at, as they were the most used applications by the respondents. The results showed that the frequency of using Christian applications accounted for a significant 5 per cent of the variability in perceived spiritual growth through Bible reading applications. While the results are significant, the variance was expected to be higher. Again, while one should be cautious to assume causation with regression analysis, it can be assumed to a small extent that perceived spiritual growth through Bible reading applications is caused by the frequency Christian applications are used. Similar to prayer applications, respondents rated a high value ($M = 5.57$, $SD = 1.41$) of and perceived spiritual growth ($M = 4.36$, $SD = 1.08$) through Bible reading applications. Of all applications, Bible reading applications were rated the highest on perceived spiritual growth. Hence, it was expected that the perceived spiritual growth through Bible reading applications could be explained through the practice of Bible reading or spiritual disciplines in general. This was confirmed, as 3 per cent of the perceived spiritual growth can be explained through the practice of Bible reading. However, when just looking at how the practice of Bible reading can be explained through the frequency Christian applications were used, a more interesting correlation came up, as 19 per cent of the practice of Bible reading can be explained through the frequency Christian applications were used. Therefore, it can be argued that using Christian applications leads to a higher practice of Bible reading. In the results it came out that perceived spiritual growth would actually suppress the relationship between the frequency applications were used and the practice of Bible reading. This might confirm the idea that perceived spiritual growth has no relationship with the practice of spiritual disciplines.

For worship applications, perceived spiritual growth could be significantly explained through the frequency Christian applications were used. According to the results, 12 per cent of the perceived spiritual growth through worship applications can be explained through the frequency applications were used. However, there was no significant relationship between the perceived spiritual growth through the applications and the practice of worship. Even if the regression model would have been significant, the practice of worship could only be explained through 1 per cent of the perceived spiritual growth through worship. However, there is a small, but significant relationship between the frequency Christian applications are used and the practice of worship: 2

per cent of the practice of worship can be explained through the frequency Christian applications are used. The finding that spiritual growth does not have a significant relationship with the practice of worship again confirms the idea that perceived spiritual growth and the frequency spiritual disciplines are performed are not related. While it could be that someone might perceive spiritual growth, this does not have to mean that someone would start praying, reading the Bible or worship more often. For other self-monitoring applications related to exercise of physical well being this might be different. Hypothetically, if one perceives oneself to be healthier or fitter, this tends to relate to the amount of exercise they have been doing. However, spirituality tends to take a different approach, were spiritual growth is not directly related to the actions a Christian performs. Hence, the actions of a Christian do not define spiritual growth, as perceived by the user of Christian applications.

Another explanation for the low correlations between the variables is that application builders tend to not take behaviour change theories in account (Conroy, Yang & Maher, 2014; Middelweerd, Mollee, van der Wal, Brug & te Velde, 2014; Patogo, Schneider, Jojic & DeBiasse, 2013). The prevalence of behavioural strategies in mobile applications ranged from 0 per cent to 25 per cent (Patogo et al., 2014). According to Conroy, Yang and Maher, the most well established technique, action planning, for motivating users to act is relatively rare in activity applications. They also argued that, mainly because of this, users would need more than one app for each activity that they intend to act on. Unfortunately, the efficacy of such applications has not been measured and thus, it is unknown how much self-monitoring applications actually help the behaviour of the users (Conroy et al., 2014; Middelweerd et al., 2014; Patogo et al., 2013). As this thesis shows, while the perceived spiritual growth and the perceived value might be high, these factors might not be linked to the actual practices of users.

5.2. Answering the research questions

Because of the assumptions of exploratory factor analysis, only three spiritual disciplines could be studied in relation to perceived spiritual growth. However, it was possible to study how all spiritual disciplines could be explained by the frequency respondents used Christian applications. This showed that to some extent, all spiritual disciplines could be explained by the frequency of application usage, except for attending church. The results also showed that almost all respondents used Christian applications and used them almost every day ($M = 6.13$, $SD = 4.84$). Furthermore, most respondents used non-Christian application to self-monitor themselves in areas as exercise and time management. As religion promotes self-regulation and self-control, these findings are not surprising (McCullough & Willoughby, 2009). Since Christians are more prone to self-monitor, the results confirm the assumption that most respondents would use Christian and non-Christian applications to self-monitor themselves in several fields of their lives, one of them being spirituality.

The findings that showed that respondents mainly used Bible, worship and prayer applications are not surprising, as Bellar (2016) showed that Christians mainly use Christian applications for Bible reading and to invest in their personal relationship with God. As many other spiritual disciplines, such as fellowship and attending church, are more interpersonal, it makes sense that the respondents use Bible, prayer and worship applications. Furthermore, most Christian applications surround the topics of Bible, prayer and worship (Kranz, 2017).

The results have showed that most of the respondents use Christian applications on a daily basis and have recorded their value, where the applications focused on each spiritual discipline were rated highly. Furthermore, it has been shown that the usage of spiritual applications influences the practice of spiritual disciplines to a small extent. However, the usage of spiritual applications influences the practice of Bible reading on a higher extent than the other spiritual disciplines. Furthermore, the usage of spiritual applications influences the perceived spiritual growth through Bible reading and worship applications to a small extent. The usage of spiritual applications did not influence the perceived spiritual growth through prayer applications.

Furthermore, the perceived spiritual growth through Bible reading applications did to some extent influence the practice of spiritual disciplines, but as a mediator, actually suppressed the relationship between reading the Bible and the usage of the applications. For worship and prayer applications, the perceived spiritual growth did not influence the practice of spiritual disciplines. This could be because more respondents used Bible reading applications, or because spiritual growth is not connected to the actual practice of the spiritual disciplines. Next to that, it could be argued that application builders have not implemented behavioural change theories enough in their applications, making the route to change more difficult for users.

5.3. Managerial implications

Based on this study, several practical suggestions arose. These suggestions are mainly directed at church or denominational leader and application builders. As research has already suggested, application builders tend to not take behavioural change strategies in to mind when creating applications (Conroy et al., 2014; Middelweerd et al., 2014; Patogo et al., 2013). If the goal of the application is to motivate the user to change behaviour, application builders need to take into account the behaviour change theories that have arisen from the field of psychology and communication.

Furthermore, application builders could look at the fields in spirituality that have not been covered yet. There is much ground to win in spiritual disciplines as fasting, confession and journaling. Through the survey, many respondents admitted practicing all spiritual disciplines in a regular manner, but not many applications exist to support this behaviour. While there are already many applications focused on Bible reading, worship and prayer, which are also often used by

respondents, it might be interesting for application builders to go further and focus on other spiritual disciplines as well.

For church and denominational leaders, there could be a different challenge. Research showed that many applications focused on weight loss and physical well-being in general were used by professionals in the field to motivate and stimulate users to lose weight or become healthier in a different manner (Aguilar-Martinez, Solé-Sedeño, Mancebo-Moreno, Medina, Carreras-Collado & Saigí-Rubió, 2014; Chen, Bauman & Allmna-Farinelli, 2016; Dennison, Morrison, Conway & Yardley, 2013). Even therapists have used self-monitoring or tracking applications during their sessions. However, as Campbell (2013) suggests, not all churches have embraced technological advances as much as the secular world. Bringing a smartphone to church could still be frowned upon, not even mentioning actually using the smartphone during the church service. However, there is a realm of opportunities here, where church and denominational leaders can motivate churchgoers and others within the congregation to practice spiritual disciplines and perceive more spiritual growth.

This thesis has showed that many users of Christian applications perceive spiritual growth and value the applications. Hence, these applications could be used within church or outside. So far, many churches have failed to implement new technologies in their congregations (Sehl Jr., 2014). One church said:

“We had been telling our congregation for years: ‘We know what your spiritual needs are, and we believe we know the program or activity that can best meet those needs for you.’ We were wrong. A ‘one-size-fits-all’ process was not what people needed.”
(Sehl Jr., 2014, p. 56).

What people needed was a unique and personal way to grow spiritually, through different Bible reading plans, new ways of learning how to pray and other ways in which they can practice traditional spiritual disciplines (Sehl Jr., 2014). It is not uncommon for churches to be biased in thinking that technology would harm spiritual lives and needs to be kept far away from church (Sehl Jr., 2014). However, there is a desire and perhaps a need for many Christians to implement technology in their lives, specifically to practice spiritual disciplines. People were used to leaving their phones at home when going to church and picking their phone back up when they are at home, living a perhaps divided life (Sehl Jr., 2014). Bringing ones smartphone to church would result in a more unified way of living, incorporating ones spirituality in modern-day technologies that are used everyday.

Therefore, church and denominational leaders could use smartphone applications like YouVersion and Prayermate to motivate users to perceive more spiritual growth or practice spiritual disciplines more often. Through this, churchgoers or other members of the congregation can incorporate their spirituality in their usage of technology.

5.4 Conclusion

This thesis intended to find out whether the frequency Christian applications were used had an influence on the practice of spiritual disciplines. In this relationship, perceived spiritual growth through Christian applications could be the mediator that enhances the relationship between the two independent variables. The hypotheses were based on the theory of quantification of the self, coined by Wired writers Kevin Kelley and Gary Wolf (Wolf, 2009) and on the technologies of the self as introduced by Foucault (1982). These theories both focused on how individuals felt the need to measure themselves in order to improve their current state of being and thus transform their behaviour. The theory of quantification of the self, coined decades later than the concept of technologies of the self, focused especially on the idea that modern-day technologies were used to measure one's behaviour. Health areas as sleep, exercise and food intake are all subject to personal measurement through applications on smartphones, tablets and smartwatches. Many scholars have looked into the opportunities and content of these applications, but few have looked into the direct effects and the transformative power the applications have on the behaviour of users (Aguilar-Martinez, Solé-Sedeño, Mancebo-Moreno, Medina, Carreras-Collado & Saigí-Rubió, 2014; Chen, Bauman & Allmna-Farinelli, 2016; Dennison, Morrison, Conway & Yardley, 2013). Especially in the field of spirituality, research was lacking in this field. While some scholars have looked into spiritual applications, there was no research on the effects of these applications, whether these applications were valued or perceived to be useful (Bellar, 2016 & Tkach, 2014). Therefore, this thesis could add a new dimension to the research done on spiritual applications and prompt other researchers to continue looking into spiritual applications, using this exploratory study as a foundation for theirs.

A quantitative method was chosen, because of which a large sample of Christians could be accessed. A survey was created via Qualtrics, focusing on the use of Christian applications, their practice of spiritual disciplines, the perceived value and spiritual growth of said applications and demographic background related to personal information and Christian tradition. The survey was started by 501 respondents, but after data cleaning and only selecting the finished responses, 321 participants remained. Because this was an exploratory research and limited research had been done in this field, no existing scales were used. Therefore, all concepts were turned into operational definitions through literature reviews of said concepts. This resulted in eight operational definitions for the spiritual disciplines and several questions measuring the perceived spiritual growth based on a scale for measuring the value and effects of applications (Hsiao, Chang and Tang, 2016).

Through exploratory factor analysis and reliability tests, it was found that the factors measuring perceived spiritual growth were both valid and reliable.

In the results, it was found that the practice of all spiritual disciplines except attending church, could be explained through the frequency Christian applications were used. Especially Bible reading could for a large part be explained through the usage of Christian applications on modern-day technologies. Perceived spiritual growth as a mediator did not have the effect that was expected. While the applications, especially for worship and Bible reading applications, did seem to influence perceived spiritual growth positively, perceived spiritual growth did not mediate the relationship between the frequency the applications were used and the practice of the spiritual disciplines. This resulted in the finding that perceived spiritual growth and the practice of spiritual disciplines might not be related at all. This is quite profound, as a strong relationship was expected between perceived spiritual growth and the practice of spiritual disciplines. Just as the connection between practicing sports more often, eating healthier and feeling better seems quite logical, the connection between perceiving growth in the field of spirituality and practicing the disciplines seemed very plausible. However, the results of this thesis showed otherwise. Future research is necessary to find out why perceived spiritual growth did not mediate the relationship between the frequency the applications were used and the practice of spiritual disciplines. It could be that the content of the applications led to perceived spiritual growth, as the content might be rich in information, but did not persuade action on the users' behalf. However, the results showed that the practice of spiritual disciplines could in part be explained through the frequency applications were used. Therefore, perceived spiritual growth did not mediate the relationship between the two variables, but there might be another mediator that has not been found in this research. As elaborated on later, future research could look into what could enhance the relationship between these two variables.

5.5 Strengths and limitations

This study added value to the field of communication research and more specifically, to the research that has been done on self-monitoring applications and quantification of the self, by looking into a new field of applications: spirituality. As this was a major category with thousands of applications, it was deemed important to look into. As some scholars have already looked into the categorization of religious applications and the selection criteria on which is decided which applications are used (Bellar, 2016 & Tkach, 2014), this research focused on a different perspective of studying Christian applications. So far, there had been limited research on how Christian applications were used, valued and perceived. This thesis made a first step in finding out how Christians perceive such applications and found many interesting results that future research could look into.

It was found that in the survey, Protestant Christians use Christian applications on almost a daily basis, and almost all application categories were highly valued and help users grow spiritually. This answered the question that Tkach (2014) ended his research with: Is there a market for spiritual applications? Would Christians actually use these applications and perceive these applications as valuable? Like Tkach, Bellar (2016) also mentioned several limitations to her study. The main limitation in her study was that she did not measure the effect of the usage of the applications and only focused her research on how Christians chose applications and whether they used the applications in a personal or interpersonal manner. This study did not only look into how applications were used, but also what the perceived effect of these applications was, by measuring perceived spiritual growth through the applications.

However, there are also some limitations that need to be taken into account when interpreting the results of this study. First of all, the sampling method chosen has several drawbacks. According to Marshall, variability and bias cannot be measured or controlled (Marshall, 1996) and the data cannot be generalized beyond the sample (Acharya et al., 2013). While it should be said that the sample was more diverse than expected, the larger part of the sample was still Protestant and Dutch. If this study would be replicated, a different sampling method like quota sampling should have been chosen for increased validity.

As the survey was mostly filled in by Dutch, American and British Protestant Christians, the results could not be generalized for all Christians or for all of the Western world. This is considered a drawback, since denominations could not be compared to each other in terms of application usage or the practice of spiritual disciplines.

Another limitation of the research is the scales that were used in the survey. While there are some scales measuring spiritual well being, there were no scales measuring spiritual growth or the practice of spiritual disciplines. Based on literature, new scales were developed based on Likert scales. However, it is encouraged to use already existing scales in order to increase the validity and the reliability of this research. If this study were to be replicated, scales linked to measuring spirituality would need to be reviewed again.

Because a survey was used in this thesis, it was difficult to measure the motivations of Christian application users to use said applications. In order to truly find out the motivation of users and whether the users value or perceive the applications to be helpful, qualitative research is necessary. In-depth qualitative interviews could give a richer dataset, exploring the choices of application users. Furthermore, the cross-sectional nature of this study limits the possibilities of researching the cause-and-effect relationships between variables. While a cross-sectional study

offers to opportunity to compare many groups at once, a longitudinal study could find better effects of Christian application usage on the practice of spiritual disciplines and the perceived spiritual growth.

Finally, it should be mentioned that this study touched may previously not researched aspects, such as the connection between quantification of the self theory and spiritual applications, how spiritual applications are used and what effect they have on the practice of spiritual disciplines. Therefore it should be noted that the findings are preliminary and need further research in order to be of much academic value. When balancing the strengths and limitations of this study, the results of this study provide a good starting point for future research.

5.6. Future research

As this study had many preliminary findings, future research is needed to confirm these results and add new insights to this field. First of all, when replicating this study, it is necessary to find a more diverse sample with Christians from different traditions and different nations. This would increase the validity of the sample. As was suggested before, the sampling method should also be improved to a probability sampling method, if possible. Furthermore, different independent and dependent variable should be looked at. For example, future research could investigate the differences between Christian traditions or continents regarding application usage, the motivation to use applications and the effects of these applications.

Prospective research needs to continue investigating this subject, taking different perspectives. While this research mainly focused on applications, future research could also look at other digital forms Christians are using to grow spiritually. This thesis found that many Christians consume digital newsletters, worship music via streaming services et cetera. Implementing these media in future research could enrich the data.

This research also found that perceived spiritual growth did not mediate the relationship between the frequency the applications were used and the practice of spiritual disciplines. However, there might be other variables mediating the relationship between these two variables, including demographic information, denominational characteristics and the perceived value of the applications. Future research, if looking into the variables frequency of application usage and the practice of spiritual disciplines, should look at whether these variables mediate the relationship. There are also variables that this research has not looked at, for example the motivation of the user to use these applications. These types of variables could also be implemented in future research and looked at as possible mediators.

Lastly, future research could also take a qualitative approach to this subject, using in-depth interviews to find out why people use Christian applications and what effects they perceive through Christian applications. Next to that, a longitudinal study would complement this research, as the effect of the Christian applications could be studied more. This research can, for both possibilities, be used as a good starting point.

6. References

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7. Appendix A: Survey

Q1 Thank you for taking the time to fill in this survey. This research focuses on how Christians use applications on mobile digital devices to maintain and develop their faith practices. The survey will approximately take 10-15 minutes to finish.

All your answers will remain confidential and will solely be used for this research by the Erasmus University.

If you have any questions regarding this survey or its results, please contact 371351mt@student.eur.nl or pridmore@eshcc.eur.nl.

Kind regards,

Michelle Tuk
Master Media & Business researcher

Jason Pridmore,
PhD Assistant Professor, Department of Media and Communication

Erasmus University
Rotterdam, The Netherlands

Q2 What is your nationality?

- Austria (214)
- Australia (217)
- Belgium (216)
- Canada (8)
- Denmark (220)
- Finland (221)
- France (4)
- Germany (5)
- Ireland (215)
- Luxembourg (224)
- Mexico (6)
- New-Zealand (219)
- Norway (218)
- Spain (7)
- Sweden (222)
- Switzerland (223)
- The Netherlands (2)
- United Kingdom (3)
- United States of America (1)
- Other (please specify) (213) _____

Q3 To which Christian tradition are you affiliated?

- (Roman) Catholic (1)
- Protestant (2)
- Orthodox (3)
- I'm not a Christian (4)

Display This Question:

If To which Christian tradition are you affiliated? Protestant Is Selected

Q4 What is your denomination? Please select the denomination that you identify with the most.

- Anglican/Episcopal (1)
- Baptist (2)
- Evangelical (3)
- Lutheran (4)
- Methodist (5)
- Pentecostal (6)
- Presbyterian (7)
- Reformed (8)
- United/Merged denominations (9)
- Non-denominational (12)
- I don't know (10)
- Other (please specify) (11) _____

Display This Question:

If To which Christian tradition are you affiliated? I'm not a Christian Is Selected

Q5 Thank you for filling in this survey! Unfortunately, our focus in this survey is on Christians using mobile digital devices and since you have indicated you are not a Christian, you do not meet the criteria of this study. If you have any questions or comments, please contact Michelle Tuk (371351mt@student.eur.nl) or Jason Pridmore (pridmore@eshcc.eur.nl).

Condition: Thank you for filling in th... Is Displayed. Skip To: End of Survey.

Q6 How often do you pray on a daily basis? For this survey, we are referring to focused prayer. This may include spoken or silent prayer and forms of meditation.

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- Other (please specify) (9) _____
- I don't know (10)

Q7 How often do you worship on a weekly basis? For this survey, we are referring to times of focused worship that includes devotional times or times of sung or spoken praise that lasts more than a few minutes, outside of organized church services.

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- Other (please specify) (9) _____
- I don't know (10)

Q8 How often do you confess on a weekly basis? For this survey, we are referring to times in which you confess your sins and shortcomings to God, a priest or pastor, or fellow Christians.

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- Other (please specify) (9) _____
- I don't know (10)

Q9 How often do you read the Bible on a weekly basis? For this survey, we are referring to times of focused Bible reading that lasts more than a few minutes.

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- Other (please specify) (9) _____
- I don't know (10)

Q10 How often do you journal on a weekly basis? For this survey, we are referring to times of in which you write (such as in a diary) or engage in artistic activities (painting or drawing) as a spiritual activity. This may include personal blogging online for spiritual purposes.

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- Other (please specify) (9) _____
- I don't know (10)

Q11 How often do you attend an organized church service on a monthly basis? For this survey, we are referring to attendance at regularly held church services that meet at an appointed location on a routine basis.

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- 8 times (9)
- Other (please specify) (10) _____
- I don't know (11)

Q12 How often do you attend an organized Christian fellowship meeting on a monthly basis? For this survey we are referring to attendance at fellowship groups, Bible studies, prayer meetings, women or men's group, church choir rehearsals, youth groups and other similar events outside the regularly held church services.

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- 8 times (9)
- Other (please specify) (10) _____
- I don't know (11)

Q13 How often do you fast on a monthly basis? For this survey, we are referring to times of fasting that includes abstaining from food, liquids and/or other normal activities for a period of time for spiritual purposes.

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- Only during certain times of the year (6)
- Other (please specify) (7) _____
- I don't know (8)

Q14 Which mobile digital devices do you use? (multiple can be selected)

- Smartphone (1)
- Tablet (2)
- Smartwatch (3)
- Other (please specify) (4) _____
- I don't use any digital devices (5)

Display This Question:

If Which mobile digital devices do you use?(multiple can be selected) I don't use any digital devices Is Selected

Q15 Thank you for filling in this survey! Unfortunately, our focus in this survey is on mobile digital devices and since you do not use a mobile digital device, you do not meet the criteria of this study. If you have any questions or comments, please contact Michelle Tuk (371351mt@student.eur.nl) or Jason Pridmore (pridmore@eshcc.eur.nl).

Condition: Thank you for filling in th... Is Displayed. Skip To: End of Survey.

Display This Question:

If Which mobile digital devices do you use?(multiple can be selected) Smartphone Is Selected

Q16 To what extent do you use your smartphone on a daily basis?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Never:All of the time (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which mobile digital devices do you use?(multiple can be selected) Tablet Is Selected

Q17 To what extent do you use your tablet on a daily basis?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Never:All of the time (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which mobile digital devices do you use?(multiple can be selected) Smartwatch Is Selected

Q18 To what extent do you use your smartwatch on a daily basis?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Never:All of the time (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q68 In what areas do you use your mobile digital device(s) to monitor your well-being? Applications that help me in terms of measuring:

- Exercise (1)
- Calories/Food intake (2)
- Weight (3)
- Sleep (12)
- Time management (4)
- Mood/Physiological state (5)
- Menstrual cycles (6)
- Alcohol intake/Nicotine intake (7)
- Blood pressure/Heart rate (8)
- None (10)
- Other: (9) _____

Q19 How often do you use Christian applications on your digital device on a weekly basis?

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- Other (please specify) (9) _____
- I don't know (10)

Q20 Which Christian applications do you use more than once a week?

- YouVersion/The Bible App (1)
- Bible In One Year (2)
- Bible! by Logos (3)
- Bible Verses (4)
- Abide (5)
- Daily Devotionals (7)
- Daily Jesus (8)
- Daily Prayer (20)
- DVO (36)
- Fighter Verses (9)
- iDisciple (10)
- Instapray (11)
- Laudate (21)
- My Daily Devotional (27)
- Olive Tree (12)
- Our Daily Bread (28)
- Pray As You Go (13)
- Prayer Notes (15)
- Prayermate (16)
- Sindr (6)
- Sunday Worship (19)
- Other (please specify) (18) _____
- None (35)

Q21 What other digital practices do you use more than once a week to support your faith?
(multiple can be selected)

- E-mails with Christian subjects (Verse of the Day, devotional, etc.) (1)
- Online sermons (live feeds or recorded) (2)
- Podcasts (3)
- Online Christian magazine(s) or news reports (6)
- Church/Denominational digital newsletters (9)
- Streaming music services for worship purposes (12)
- Other (please specify) (4) _____
- None (5)

Q22 How often do you think other Christians similar to you use Christian applications on a weekly basis?

- 0 times (1)
- 1 time (2)
- 2 times (3)
- 3 times (4)
- 4 times (5)
- 5 times (6)
- 6 times (7)
- 7 times (8)
- Other (please specify) (9) _____

Q23 Which type of Christian applications do you use more than once a week? (multiple can be selected)

- Applications that help me in terms of prayer (1)
- Applications that help me in terms of Bible reading (2)
- Applications that help me in terms of attending church (3)
- Applications that help me in terms of fellowship (4)
- Applications that help me in terms of worshipping God (5)
- Applications that help me in terms of fasting (6)
- Applications that help me in terms of journaling (7)
- Applications that help me in terms of confession (8)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of prayer Is Selected

Q24 How valuable do you believe Christian applications are for developing and maintaining your prayer life?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Not valuable at all:Very valuable (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of prayer Is Selected

Q25 Please rate the following: I think the Christian applications I use that help me in terms of prayer are:(1 = not at all, 7 = very much)

user-friendly (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
engaging/entertaining/fun (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
encouraging spiritual growth (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
informative (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of prayer Is Selected

Q26 Considering applications that mostly help me in terms of prayer, this (or these) application(s) help me:

share my faith with others (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
share content with others (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
read the Bible (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
maintain my faith rituals (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
memorize Bible verses (5)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
remember prayer requests (6)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
learn more about my faith (7)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
set faith goals (8)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
see my progress (9)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
monitor my	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Christian activities (10)							
increase spiritual self-awareness (11)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of Bible reading Is Selected

Q27 How valuable do you believe Christian applications are for developing and maintaining regular Bible reading times?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Not valuable at all:Very valuable (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of Bible reading Is Selected

Q28 Please rate the following: I think the Christian applications I use that help me in terms of Bible reading are:(1 = not at all, 7 = very much)

user-friendly (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
fun/entertaining/engaging (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
encouraging spiritual growth (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
informative (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of Bible reading Is Selected

Q29 Considering applications that mostly help me in terms of Bible reading, this (or these) application(s) help me:

share my faith with others (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
share content with others (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
read the Bible (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
maintain my faith rituals (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
memorize Bible verses (5)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
remember prayer requests (6)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
learn more about my faith (7)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
set faith goals (8)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
see my progress (9)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
self-monitor	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

my faith activities (10)							
increase spiritual self-awareness (11)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of attending church Is Selected

Q30 How valuable do you believe Christian applications are for developing and maintaining church attendance?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Not valuable at all:Very valuable (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of attending church Is Selected

Q31 Please rate the following: I think the Christian applications I use that help me in terms of attending church are:(1 = not at all, 7 = very much)

user-friendly (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
fun/entertaining/engaging (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
encouraging spiritual growth (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
informative (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of attending church Is Selected

Q32 Considering applications that mostly help me in terms of church attendance, this (or these) application(s) help me:

share my faith with others (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
share content with others (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
read the Bible (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
maintain my faith rituals (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
memorize Bible verses (5)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
remember prayer requests (6)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
learn more about my faith (7)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
set faith goals (8)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
see my progress (9)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
self-monitor	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

my faith activities (10)							
increase spiritual self-awareness (11)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of fellowship Is Selected

Q33 How valuable do you believe Christian applications are for developing and maintaining regular fellowship with other Christians?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Not valuable at all:Very valuable (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of fellowship Is Selected

Q34 Please rate the following: I think the Christian applications I use that help me in terms of attending fellowship are:(1 = not at all, 7 = very much)

user-friendly (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
fun/entertaining/engaging (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
encouraging spiritual growth (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
informative (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of fellowship Is Selected

Q35 Considering applications that mostly help me in terms of fellowship, this (or these) application(s) help me:

share my faith with others (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
share content with others (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
read the Bible (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
maintain my faith rituals (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
memorize Bible verses (5)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
remember prayer requests (6)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
learn more about my faith (7)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
set faith goals (8)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
see my progress (9)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
self-monitor	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

my faith activities (10)							
increase spiritual self-awareness (11)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of worshipping God Is Selected

Q36 How valuable do you believe Christian applications are for developing and maintaining regular worship times outside of organized church services?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Not valuable at all:Very valuable (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of worshipping God Is Selected

Q37 Please rate the following: I think the Christian applications I use that help me in terms of worship are:(1 = not at all, 7 = very much)

user-friendly (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
fun/entertaining/engaging (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
encouraging spiritual growth (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
informative (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of worshipping God Is Selected

Q38 Considering applications that mostly help me in terms of worship, this (or these) application(s) help me:

share my faith with others (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
share content with others (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
read the Bible (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
maintain my faith rituals (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
memorize Bible verses (5)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
remember prayer requests (6)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
learn more about my faith (7)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
set faith goals (8)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
see my progress (9)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
self-monitor	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

my faith activities (10)							
increase spiritual self-awareness (11)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of fasting Is Selected

Q39 How valuable do you believe Christian applications are for developing and maintaining regular fasting times?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Not valuable at all:Very valuable (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of fasting Is Selected

Q40 Please rate the following: I think the Christian applications I use that help me in terms of fasting are:(1 = not at all, 7 = very much)

user-friendly (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
fun/entertaining/engaging (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
encouraging spiritual growth (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
informative (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of fasting Is Selected

Q41 Considering applications that mostly help me in terms of fasting, this (or these) application(s) help me:

share my faith with others (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
share content with others (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
read the Bible (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
maintain my faith rituals (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
memorize Bible verses (5)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
remember prayer requests (6)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
learn more about my faith (7)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
set faith goals (8)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
see my progress (9)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
self-monitor	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

my faith activities (10)							
increase spiritual self-awareness (11)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of journaling Is Selected

Q42 How valuable do you believe Christian applications are for developing and maintaining regular journaling times?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Not valuable at all:Very valuable (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of journaling Is Selected

Q43 Please rate the following: I think the Christian applications I use that help me in terms of journaling are:(1 = not at all, 7 = very much)

user-friendly (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
fun/entertaining/engaging (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
encouraging spiritual growth (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
informative (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of journaling Is Selected

Q44 Considering applications that mostly help me in terms of journaling, this (or these) application(s) help me:

share my faith with others (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
share content with others (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
read the Bible (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
maintain my faith rituals (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
memorize Bible verses (5)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
remember prayer requests (6)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
learn more about my faith (7)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
set faith goals (8)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
see my progress (9)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
self-monitor	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

my faith activities (10)							
increase spiritual self-awareness (11)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of confession Is Selected

Q45 How valuable do you believe Christian applications are for developing and maintaining regular times of confession?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
Not valuable at all:Very valuable (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of confession Is Selected

Q46 Please rate the following: I think the Christian applications I use that help me in terms of confession are:(1 = not at all, 7 = very much)

user-friendly (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
fun/entertaining/engaging (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
encouraging spiritual growth (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
informative (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Display This Question:

If Which type of Christian applications do you use more than once a week?(multiple can be selected) Applications that help me in terms of confession Is Selected

Q47 Considering applications that mostly help me in terms of confession, this (or these) application(s) help me:

share my faith with others (1)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
share content with others (2)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
read the Bible (3)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
maintain my faith rituals (4)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
memorize Bible verses (5)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
remember prayer requests (6)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
learn more about my faith (7)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
set faith goals (8)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
see my progress (9)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)
self-monitor	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

my faith activities (10)							
increase spiritual self-awareness (11)	<input type="radio"/> 1 (1)	<input type="radio"/> 2 (2)	<input type="radio"/> 3 (3)	<input type="radio"/> 4 (4)	<input type="radio"/> 5 (5)	<input type="radio"/> 6 (6)	<input type="radio"/> 7 (7)

Q48 What is your sex?

- Male (1)
- Female (2)

Q49 What is your age?

- 13 (13)
- 14 (14)
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- 98 (98)

- 99 (99)

Q50 What is your annual household income?

- \$0 to 20 000 US/ €0 to 19 000/ £0 to 16 000 (1)
- \$20 001 to 40 000 US /€19 001 to 38 000 / £16 001 to 32 000 (2)
- \$40 001 to 60 000 US / € 38 001 to 57 000 / £ 32 001 to 48 000 (3)
- \$60 001 to 80 000 US /€ 57 001 to 76 000 / £ 48 001 to 64 000 (4)
- \$80 001 to 100 000 US / € 76 000 to 95 000 / £ 64 001 to 80 000 (5)
- More than \$100 000 US / more than € 95 000 / more than £ 80 000 (6)
- I don't know (7)
- Prefer not to say (8)

Q51 How many people are in your household, including yourself?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- Other (please specify) (7) _____

Q52 What is the highest level of education you completed?

- Elementary school (1)
- High school (2)
- College/higher education (3)
- Bachelor's Degree (4)
- Master's Degree (5)
- PhD (6)
- Prefer not to say (7)

Q69 Do you have responsibilities in your Church?

- Yes, I'm a denominational leader (1)
- Yes, I'm an ordained minister/pastor (2)
- Yes, I'm a worship leader/non-ordained minister or pastor (3)
- Yes, I'm a small group/youth group leader (4)
- Yes, I'm a contributing member (5)
- Yes, I have some occasional duties (6)
- I currently have no responsibilities (7)

Q53 How did you access this survey?

- E-mail (1)
- Facebook (2)
- Twitter (3)
- Website (4)
- Recommended by my friend (5)
- Other (please specify) (6) _____

Q54 Do you have any further comments regarding this survey?