User Experiences Concerning the Impact of Spiritual Apps on Everyday Life

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Abstract

Nowadays in the 2020's, a wide range of apps for spirituality exist on the market. They can support the user to implement spiritual practices into everyday life and serve as guidance for spiritual living. Investigating how those spirituality apps can influence the user's life and support a spiritual lifestyle can be an important contribution, as research has shown that spirituality in daily life can reap several health benefits, such as, building better stress resilience. Even the field of positive psychology supports and implements spiritual practices as it has acknowledged the possibilities for well-being. In this research, a qualitative approach was used to understand more about how users of apps for spirituality perceive those apps in influencing how they live their daily life. In total, 23 semi-structured interviews were conducted, and 15 of those were used for analysis. The thematic analysis was based on the six steps offered by Braun and Clarke (2006). It became evident that participants reported on changes that they noticed in their everyday life since implementing more spiritual practices with these apps. Those changes relate to different domains, such as organisation, coping strategies, self-care, routines, and evaluation of situations. Furthermore, the effects of using spirituality apps were largely described as positive and desirable. However, some participants talked about negative experiences, reporting that the apps can also create more stress or pressure during the day. As there is a general research gap for qualitative studies relating to the topic of spirituality apps, this study contributes to filling this gap by providing qualitative insights into user experiences.

Keywords: spirituality, spirituality apps, daily life, influence, alteration

User Experiences Concerning the Impact of Spiritual Apps on Everyday Life

Integrating apps to organise and support daily life or to achieve a certain goal has become common in the 2020's. Moreover, the field of spirituality has been consistently merging with technology, leading to a growing number of mobile applications that provide guidance for starting and continuing a spiritual journey. In 2021 alone, there were over 6000 apps for spirituality in the Apple App Store (Ahmad et al., 2021). In addition, the number of individuals who identify themselves as spiritual but not religious is on the rise (Lipka & Gecewicz, 2017), creating a larger target group that possibly integrates those apps into their daily lives. For example, in the year 2017, about a quarter of US Americans (27%) thought of themselves as being spiritual. This number has increased by 8% compared to 2015 and is on the rise since then (Lipka & Gecewicz, 2017).

Gorichanaz (2022) describes that a person's spirituality can be seen as a driving force behind their overall wellness and the resonating foundation for all other parts of wellness. In other words, spirituality can contribute to being fully functional and realising one's potential, underlining once more the importance of investigating the topic of spirituality. Despite the growing interest, there is not much qualitative research done about spirituality, and even a larger gap exists regarding spiritual apps (Ahmad et al., 2021). Therefore, this research aims at getting a deep insight into the user experiences of people who regularly use smartphone apps for spirituality by integrating a qualitative approach. Hereby the focus is on how users perceive the alteration of their everyday life through the use of these apps. This will shed light on the question to what extent people do experience a change in their everyday life because of spirituality apps.

In general, spirituality can be defined as believing in something bigger than humankind and trying to search for a meaning in life with an emphasis on personal growth

and development (Scott, 2022). However, spirituality is something personal and the term is not neutral. For some, it might be specific religious practices, whereas for others it is connecting to a higher state through meditation (Delagran, 2016). However, even if spirituality can be a part of religion and vice versa, the two concepts must be viewed separately, as they are related but distinct (Pesut et al., 2008). Religion is a narrower construct, with set rules, rituals, and especially institutional beliefs. Spirituality can be described as an individualised journey guided by themes like connectedness, transcendence, hope, or purpose (Pesut et al., 2008). Defining spirituality in the context of mobile applications is still vague since there is a lack of research regarding this connection (Ahmad et al., 2021). For this study, the conceptualisation of spirituality in the context of mobile applications is based on the participant: they must state that they use this app to practise or support their personal interpretation of spirituality.

The definition of spirituality can also vary between different fields. According to the American Psychological Association (n.d.), spirituality can be defined as a care for matters of the spirit or soul in contrast to materialistic concerns. Within the religious framework, the definition of spirituality is more based on believing in something beyond oneself, like a divine figure or an almighty power (Scott, 2022). Miovic (2004) states that the definition of spirituality within philosophy entails the existence of an immaterial reality undetectable by the senses.

In addition, how people approach and define spirituality varies a lot between individuals. For example, people can view spirituality as a part of their character or identity (Delagran, 2016). Reimer and Dueck (2012) mention that spirituality, as part of one's character, can influence daily choices and the organisation of one's everyday life. For instance, Scott (2022) mentions that it can affect relationships with others by creating more compassion and empathy or attempting to find happiness beyond material possessions.

Moreover, spirituality can be implemented as a philosophy. People integrating spirituality as a philosophy might ask themselves deep questions about topics such as what happens after death or what the meaning of life is (Scott, 2022). Lastly, spirituality can be implemented as a lifestyle. Spirituality as a lifestyle can encompass many things, such as the practice of meditation, breathwork, prayer, walks in the nature, or yoga (Kishan, 2020). Hereby, the focus is on the active integration of spirituality and spiritual practices in everyday life. Since the current study focuses on influences on daily life, the conceptualisation of spirituality as a lifestyle is used as it entails implementing certain actions, rituals, or behaviours that serve a spiritual purpose and can possibly alter everyday life.

Additionally, to describe modern Western spiritual belief systems the concept of New Age is often used. Within the concept of New Age, spiritual belief systems are combined with a belief in a higher power or supernatural forces (Collins, 1998). Hereby, the focus is on achieving a higher state of awareness and connecting with the higher self (Collins, 1998). Moreover, New Age also connects every individual with nature, other beings, and the source that creates life (Farias & Lalljee, 2006). However, even if it underlines the interconnectedness of humans and nature, it is a very individualistic philosophy with a focus on self-development (Farias & Lalljee, 2006). Nevertheless, the term New Age can carry a negative connotation. For example, Aupers and Houtman (2006) mention that New Age has been accused of serving as an individual 'bricolage' where everyone can just pick and mix their psychological, magical, or esoteric beliefs, making the movement incoherent.

According to a meta-analysis reviewing 350 studies, people who are more religious or spiritual and who use their spirituality to deal with difficulties in life reap several health and well-being benefits (Akbari & Hossaini, 2018). In the study of Whitehead and Bergeman (2012), it was found that daily spiritual experiences help people to better cope with stress and negative feelings by enhancing positive feelings and an optimistic point of view. This is

supported by Akbari and Hossaini (2018) who mention that spirituality enhances coping mechanisms for daily life challenges. Furthermore, Delagran (2016) describes a positive connection between emotional and spiritual well-being. Since spirituality is about seeking a genuine connection with something bigger than oneself, it can lead to feelings of peace, awe, gratitude, appreciation, and acceptance, among other positive emotions (Delagran, 2016). Moreover, a spiritual lifestyle can help to reduce symptoms of depression and anxiety (Wachholtz & Pargament, 2008). Lastly, spirituality does not only affect mental well-being. Akbari and Hossaini (2018) found that people with higher spiritual health have healthier bodies and need less medical care. Hereby, spiritual health was defined as having spiritual perspectives on beliefs, attitudes, values, and behaviours that positively influence one's mental or physical health, for example, being more compassionate with one's body (Akbari & Hossaini, 2018). Conclusively, the importance of the current study is underlined by pointing towards the mental and physical benefits a spiritual life has to offer.

Due to its diverse positive influences on physical and mental health, many psychologists and healthcare providers attempt to integrate spirituality into their clinical practice (Falb & Pargament, 2014). Hereby, spirituality especially arrived in the field of positive psychology (Roussiau et al., 2022), which focuses on positive individual traits, well-being, and human flourishing and the institutions that facilitate those topics (Lee Duckworth et al., 2004). Bohlmeijer and Hulsbergen (2018) stress that positive psychology is dedicated to pleasant emotions because experiencing those is essential for a happy life. Fostering particular spiritual topics such as hope, forgiveness, gratitude, humility, resilience, and compassion have shown to contribute to overall well-being and functioning (Falb & Pargament, 2014). Within the framework of positive psychology, practises connected to spirituality are often used to strengthen those attributes, for example through meditation or an emotion diary (Falb & Pargament, 2014). In this domain, apps for spirituality could be useful

for clients as they possibly help to support the spiritual journey. They could serve as a tool that supports the interventions in clinical practice based on the goal to facilitate spiritual topics and ultimately well-being. Therefore, investigating spirituality apps, their functions, perceived usefulness and influences, can make practical implications for positive psychology practitioners and their clients.

Over the past years, mobile applications have become more and more attractive to be used for spiritual purposes. They can be seen as an affordable and convenient way of potentially integrating spirituality into our everyday life. According to McClure (2018), mobile phone applications can be viewed as a suitable technology or environment for spiritual engagement. Moreover, a wide range of apps is available, so users can select according to their interests and preferences. For example, 'Calm' and 'Headspace' are the leading apps for meditation and mindfulness worldwide (Graefe, 2022). Others might be created to help with manifestation, like the 'Law of Attraction Toolbox' app or to serve as a journaling tool, like 'Day One' (Gorichanaz, 2022). Spirituality apps especially make use of push notifications, text-based information, and rich media content like videos or animations (Gorichanaz, 2022; Laurie & Blandfold, 2016). According to Laurie and Blandford (2016), the user staying engaged with the app can facilitate spiritual engagement. In addition, because of the many potential benefits regular spiritual practices can reap, it is important to investigate if these apps are able to foster and support the user's spiritual journey.

Ahmad et al. (2021) point toward the fact that a lot of Human-Computer Interaction (HCI) research has been done regarding the usability of spirituality apps but that there is a substantial lack of qualitative research regarding spirituality and user experiences. Buie and Blythe (2013) state that there is especially research missing on areas such as experienced emotions, affect, and other parts of subjective user experience. This research gap is multi-layered as it concerns not only spirituality apps but lived spirituality in general and especially

qualitative data about those topics (Buie & Blythe, 2013). With regards to meditation apps, most research focuses on changes related to the body, for example, a lower heart rate, instead of spiritual insights or mental experiences (Daudén Roquet & Sas, 2018). In other words, it is mostly concerned with physical experiences, investigating relaxation rather than mindfulness or spirituality (Daudén Roquet & Sas, 2018). Terzimehić et al. (2019) support this statement by saying that research that is strongly based on evaluating bodily experiences is leaving out an important part of spirituality, namely the mental one. This hints again at the necessity of conducting qualitative research, where participants can elaborate also on mental or psychological experiences.

Therefore, this study aims to investigate user experiences with smartphone apps for spirituality using a qualitative approach. The focus is on how users of spiritual mobile applications perceive the apps' role in influencing their daily life and choices. Specifically, the study investigates if there are indeed perceived alterations in the users' daily life due to regular use of spiritual apps and how these changes are evaluated by the user. The target group includes every person that uses those spirituality apps regularly. The research question that will guide the study is "What are the perceived impacts of spiritual mobile applications on the users' daily life?".

Methods

Study Design

This research employed a qualitative study design with semi-structured interviews as the data collection method. The interviews were conducted as a group project. In total, 23 interviews were conducted by five group members using an interview protocol (see Appendix A). The author of this thesis collected five interviews. Since all group members had a

different focus, the interview protocol involved questions to collect data relevant to answering different research questions. For this thesis, the focus was on questions that asked participants if and how they perceive using spirituality apps to influence their daily habits or routines. Overall, the aim was to gather deep insights into the user experiences with smartphone apps for spirituality, especially regarding how those influence everyday life.

Participants

In total, 23 participants volunteered for this study. For the analysis in this thesis, 15 interviews of the total number of 23 were selected. This selection was based on including interviews that involved relevant information for answering the research question. The mean age of the selected participants was 22, ranging from 18 to 28. In the participant sample, six nationalities were represented, but most of them indicated being either German or Dutch. Regarding gender, 12 identified as female, three as male, and no one as non-binary. The inclusion criteria were a) to be a regular user of an app for spirituality and b) to be over 18 years old. Moreover, as the focus is on spiritual practices and experiences and not on religion, users of apps revolving around traditional religions were not included in the study. In addition, apps that are designed for other purposes but include parts of spiritual practices like YouTube or Spotify were also excluded, since the focus was on apps that are solely designed for spiritual matters.

Materials

For the interviews, an interview protocol with a set of 17 pre-defined questions was used (see Appendix A). The first questions were designed to get insight into the participants' own interpretation of spirituality in general ("Is spirituality a word that describes your beliefs and values well?"). Then, the focus switched to mobile applications, starting with general questions about the app that is used ("Can you tell me something about why you use this

app?"). These were followed by questions about how the participant uses this app ("What kinds of features does the app have and how do you use them?"). Then, the participant was asked to place himself in a certain situation, for example, the last time the app was used, and share as much detail as possible. Lastly, questions about the impact of using these apps on a regular basis were included ("Would you say using this app has had an impact on you or your life?"). Moreover, follow-up questions and probes were posed to get a deeper understanding of the answers or to engage the participant to elaborate more.

Procedure

The participants for this study were recruited using Sona Systems, the test subject pool of the University of Twente. Moreover, the social media platforms WhatsApp and Instagram were used to collect participants. In addition, participants had the option to either have the interview in person or online (Microsoft Teams).

The study was approved by the Ethics Committee from the Faculty of Behavioural, Management, and Social Sciences (BMS), Domain of Humanities and Social Sciences (HSS) of the University of Twente (Application number: 221430) (see Appendix B). After participants signed up or agreed to participate, a written consent form (see Appendix C) and an information sheet, with a summary of the study's content (see Appendix D), were sent to the participant. The consent form needed to be signed and sent back to the researcher before the beginning of the interview. At the beginning of the interview, participants were reminded about their rights and asked if the interview can be recorded. After giving oral consent, the recording was started, and the interview questions were posed.

Data Analysis

Transcriptions

To analyse the data, the recordings of the interviews were transcribed. The software Otter.ai was used to automatically transcribe audio files into text. Because this programme is prone to mistakes, all transcriptions were checked manually to account for correctness and readability.

Thematic analysis

To analyse the data, a thematic analysis was conducted, using the software Atlas.ti version 9. This approach aims at finding, investigating, and reporting underlying patterns within the data to create themes (Braun & Clarke, 2006). More specifically, a reflexive thematic analysis approach was used, meaning that there were no coding schemes or code books. Making sense of the data is primarily based on the researcher's subjectivity (Braun & Clarke, 2006). Moreover, the process of analysing the data was based on the six steps for thematic analysis offered by Braun and Clarke (2006):

1. Familiarising yourself with the data
2. Generating initial codes
3. Searching for themes
4. Reviewing themes
5. Defining and naming themes
6. Producing the report

Before conducting the analysis, all transcripts were anonymised, by giving participants pseudo-names and removing any information that could lead to identification. Then, in the first step, all interview transcripts were read twice. Hereby, the focus was on keeping the transcripts where participants talked about perceiving an influence on their daily life due to practising spirituality. Based on the research question of the current study, the most useful parts of the interview consisted of answers to question number 11 ("Has using

this app had an impact on your daily habits and/or routines? "), however, also other parts of the interviews were included in the analysis. The interviews in which it was clearly stated that there was no perceived alteration were sorted out, to arrive at the final data selection of 15 interviews. Those 15 interviews were then read again, to familiarise with the data more deeply.

The next step was to generate initial codes. A code is a label given to a piece of text with the aim to organise the data into purposeful groups and identify segments that could form the basis of repeated patterns. This part of the analysis used an inductive approach, which entails that the data was coded without trying to fit it into a coding scheme or adapt it to preconceptions. The researcher went through all selected transcripts twice, to code for as many potential themes as possible. In the end, 17 codes were created. To give an example, the extract "It kind of motivated me to start committing to some things" would have been coded with 'Improve commitment'. Since participants usually used more than one sentence to describe the perceived influence, a series of consecutive sentences could be labelled with the same code.

During the third step, the researcher considered how codes might be combined to form overarching themes. A theme is a more broader underlying pattern that reveals something interesting to answer the research question. After the first round of searching for themes, six themes were created. All themes included a minimum of two codes. The extract "I started reflecting on my day daily" was coded with 'Incorporating new habits'. This code was then part of the overarching theme 'Integrating new routines and replacing old habits with more desired ones', showing how spirituality apps offer new practices that can be implemented into daily life.

Then, in the next step, all themes were reviewed and refined. Hereby, the researcher looked again at the coded interview extracts to see if they indeed form a coherent pattern that fits into the theme. After that, one theme was dismissed because two initially separate themes were recognised as being very similar and could be combined into one conclusive theme instead. Moreover, one of the codes was also deleted, as only two pieces of text within the same interview had this code, making the code not cross-data relevant. In addition, the code did not seem to fit into any theme. Conclusively, all themes were reviewed by the supervisor, who agreed on the final five themes.

In step five, the focus was on providing a coherent definition of each theme, stressing the essence, and communicating what each theme is about. Furthermore, the researcher worked on the final names of each theme. This process included communication with the supervisor. Considering her suggestions, especially the theme names were refined multiple times.

With 157 data extracts categorized under five themes, the report was produced, which is the last of the six steps. This report was then revised multiple times to take more analytical distance and not just repeat the content of the quotes.

Results

The people that were interviewed used the following apps: Calm, Daylio, Co-Star, Headspace, Saged, Balance, Astrology, Mindspace, Falcı Bacı, and Sanvello. The descriptions of those apps are based on the apps' websites. From the ten apps, Calm (Calm.com), Headspace (Headspace.com), Balance (Balanceapp.com), Mindspace (Mindspaceapp.com) and Sanvello (Sanvello.com) are all mobile applications for meditation and mindfulness. They incorporate guided meditations for different themes, such as stress or anxiety, as well as videos and information around the topic of mindfulness. Co-star and

Astrology (Costarastrology.com) are apps for astrology, where users can see their birth chart and an overview of the different star signs and what they mean. Furthermore, they provide a daily horoscope and themes which the user might struggle with or have a strength in on that day. The app Daylio (Daylio.net) can be described as a journaling app, as the users can track their mood and write down or reflect on what they did that day. Saged (Sagedapp.com) provides daily affirmations for the user to work with during meditation and it also suggests articles about different topics of spirituality. Moreover, Saged incorporates a public chat room for users to share their opinions and thoughts. Lastly, Falcı Bacı (Kaavefali.com) is for 'coffee mug readings', a Turkish ritual, where the user can scan their coffee mug and the app makes predictions about the future.

Five themes were created, which all relate to the topic of how the users perceive the apps to influence their daily life (Table 1). The themes are listed from highest to lowest frequency.

Table 1

Themes Relating to the Influence of Spirituality Apps on Daily Life

Main Theme	Explanation of the Theme	Codes included	N
Helping with stressful daily situations	The apps and acquired skills serve as a helping tool to deal with stressful events differently	-Gaining back energy -Grounding effect -Relaxing when being stressed -Resolve things that bother you	45

Offering alternative perspectives to evaluate situations	Situations are evaluated from a different perspective which ultimately alters future behaviour towards this situation	-Explanatory Role -Reflection -Shifting focus from negative to positive	34
Guidance towards more structure in everyday life	The apps and the acquired skills give more guidance during everyday life and positively influence its organisation	-Give more structure -Improve commitment -Improve focus -Staying motivated (Reinforcement)	32
Integrating new routines and replacing old habits with more desired ones	The practices offered by the spirituality apps were used as new routines and undesired habits were replaced with more desired ones.	-Building new routines or altering the old ones -Incorporating new habits	27
Taking time for self-care activities	Time for self-care activities is integrated into everyday life and decisions are made that are based on supporting personal well-being	-Going through the day with more awareness -Improving gratefulness -Incorporating 'Me-Time'	14

As the table shows, the most frequent theme was Helping Tool (N=45). Evaluation of Situations (N=34), Guidance (N=32), and Routines (N=27) were also very common in the interview data. Self-care (N=14) was the least frequent theme.

Helping with Stressful Daily Situations

The participants see the apps and the practices on the apps, as a tool in their daily life

to face difficult situations. Practices that were mostly connected with this theme are meditation or similar mindfulness exercises. Moreover, the apps were described as an emergency tool that is always available. "Lena" (Mindspace), a participant who struggled with anxiety attacks, used the guided meditation function to overcome those anxious states: "I think for me that was like a way of being able to maybe, um, yeah, like I said, helped me with my anxiety and I knew like I could meditate when I'm feeling bad." This function as a helping tool is connected to overcoming negative emotions, as participants reported that they view the apps as useful when feeling stressed, anxious, or overwhelmed.

In general, the app is actively used and recognised as an available tool to resolve a stressful situation. For example, "Naomi" (*Headspace*) reported:

"I think, I felt quite stressed with university and I had the mindset of 'I must do something to be productive, to feel good'. And I experienced this mindset as very distressing, it was a very stressful mindset. So, then, I decided to do meditation because I always experience it as helpful, and it helps me to meditate then. And meditating with the app three days ago helped me to get aware of what I'm actually thinking and where all those stressful thoughts come from, and to calm down of course. And then, I used the app."

It seems that the apps especially help to relieve mental stress. The participant reports having a "distressing mindset" and that through the meditation offered in the app, she was able to get a clearer view of her thoughts and evaluate them differently. Furthermore, in this extract, one can see that the use of this app has an influence on daily life because meditating with the app was the directly chosen strategy to resolve this stressful situation.

Astrology apps were also mentioned as serving as a helping tool. "Magda" reported: "If I'm feeling stressed or something, I will look at the horoscope part and see if there's

something good in there for me, you know, to get some relaxation or to have a little bit of the stress lifted". Here, the app seems less to be a way to reorganise thoughts or go inwards, and more a way to release stress by reading something positive about the future. The astrology app gives hope for positive things to happen which makes the current situation less stressful as the user at least gets the prediction that it will get better. Nevertheless, even if astrology apps reach the goal of stress relief in a different way than meditation apps, they still seem to have the same influence on the user's daily life, namely, serving as a helping tool.

Furthermore, the app as a helping tool is regularly integrated into everyday life as it is not only about big life decisions but also about daily life stressors. Hereby, meditation and mindfulness applications seem to be used to mentally relax and adopt a more rational point of view. Astrology apps, seem to be used to get an uplifting view of the future. However, as there is no guarantee that those positive predictions will take place, it could be interpreted as a way of blocking negative feelings by distracting oneself with the app. Most participants that used astrology apps reported that they know horoscopes are not scientifically proven, but that they want to believe in them if they promise something good. For example, "Sophie" (*Co-Star* and *Astrology*) reports that she overthinks and gets sad a lot and that she then looks at her horoscope: "And I'm like, OK, might be true, might not be true, but this is what the app tells me. And I'm, like, makes me happy. So, it motivates me again.". This extract illustrates the repeated pattern of distracting oneself with positive predictions from horoscopes and using them to soothe stress. Hereby, it seems that the validity of the predictions is disregarded because it serves the purpose of helping in difficult situations.

Offering Alternative Perspectives to Evaluate Situations

Within this theme, the participants reported on how the use of spirituality apps makes them evaluate situations differently and thus alter behaviour in those situations. For example,

the horoscope of astrology apps was often used as an explanation for what was happening in the user's life. It seemed that people take these explanations as facts without questioning them. Moreover, participants reported using this insight to implement certain behaviour on that day or to pay special attention to act and behave in a way that fits to the horoscope's statements, thus altering the organisation of their day. Sophie said:

> "When I read through my text, I'm thinking about that information the whole day, so I'm like, okay, it tells me today I might be more stubborn, for example. So, I try to be as open as I can then."

This extract shows that the participant displays the apps as influencing her behaviour. Moreover, the participant takes the prediction that she might be more stubborn as a motivation to be more open towards situations and people on that day. However, this influence can also go in a concerning direction, where behaviour is guided towards undesired actions. "Maya" (*Falcı Bacı*) explains that when she got negative predictions from the coffee mug reading, she often adjusted her behaviour towards a self-fulfilling prophecy, causing fights with friends or family. She says that the alternative perspectives offered by the app are not always beneficial and that one should be careful:

> "Sometimes I need to really distance myself from what is said in the app, because if it says, 'oh, everything will be horrible', or 'this will be horrible', I don't want a self-fulfilling prophecy to appear. So, it's always just like, okay… Just because it said everything will be shitty, I need to be careful that I don't push myself on purpose into this direction."

Nevertheless, most users used the apps to shift a negative experience to something more positive. "Charlotte" (*Balance*) described this process in the following way:

"It is really good for me because I often have a really busy day and I have difficulties seeing the good things during my stressful days, and this function helps me see the day in a more positive way and also think about situations more positively".

However, in this extract, the participant talks about meditation practices and not astrological predictions. The alternative perspective offered by practising meditation seems to show the user the positive side of every situation. The alternative perspective offered by astrology apps seems to either influence behaviour towards self-improvement or self-sabotaging.

Guidance Towards More Structure in Everyday Life

Several participants reported that the applications helped them increase their focus and dedication while sticking to a set structure. Overall, this theme appeared regarding all the different apps. Those apps served as a reinforcing instrument that gives the motivation to continue to a set goal. Moreover, it was not only about sticking to set structures and goals but also about creating new ones. One participant, "Moritz" (*Calm*), described it as follows: "The fact that I would kind of set some time to work out, set some time to run, set some time to follow these schedules at the spiritual level that Calm gives you... that created some structure." The practices offered by the apps were perceived as helping to integrate more organisation into everyday life.

In addition, this improved focus and commitment was perceived as something very valuable. Most participants explained that they found themselves in a place without much structure or direction. By integrating spirituality apps into their daily life, they were able to create everyday goals and plans, and it was easier to stick to them. "Silvia" (*Daylio*) mentioned that the app helped her to finish at least some tasks that she wanted to do, even if she didn't feel like:

"So sometimes I will tell myself, like now if you just do one thing, at least you've got
like one thing scraped off your list. So, it did also motivate me to do at least
something when I didn't feel like it."

With "it" the participant describes the function of the *Daylio* app where she reflects
on her day. The participant is discussing the *Daylio* app as motivating her "to do at least
something", thus indicating a common experience within this theme: The apps can take the
role of a motivating friend even in very difficult life situations. Moreover, this might suggest
that people really struggling in their life turn to these apps to have some kind of a managing
tool. That can be a good thing, by offering people a new tool to manage their lives, or very
problematic, by eventually creating dependence on those apps. Dependence in this context
means that users of spiritual apps might be able to organise their days in a structured way
because the apps help them to do so, but they lack the ability to keep this up when the use of
the app is discontinued.

The participants linked their increased motivation to stick to their set structure to the
apps' features such as push notifications, pre-set schedules, or positive feedback. Push
notifications served as a reminder to stick to some schedule. In addition, most meditation
apps had a set schedule, which made it easier for the users to integrate it into their everyday
life. Lastly, for example, the journaling app *Daylio*, gives the user positive feedback when
sticking to the goal of journaling their mood once a day, which was described as a major
reinforcement to continue working with those apps. Silvia described it in the following way:

"So, end of the day, I think I opened the app because I got the notification, and then I
wrote everything down. And I remember that I was very happy. Because I was very
accomplished. And then I screenshotted even and sent it to my friend, I was like, 'See
what I did today'. I'm very proud. And they were also very happy for me."

This extract illustrates the effect of positive reinforcement very well. The user felt happy and accomplished after journaling her day in the app and having a visualisation of all her achievements on that day. However, users could also see their 'losses' if they didn't finish any task. This was described as a stressor, triggering feelings like disappointment and frustration. Therefore, within this theme, it seems that the apps can also create some kind of pressure to adhere to the app's structure because the user's mood depends on whether or not they stick to it.

Integrating New Routines and Replacing Old Habits with More Desired Ones

The theme involves new routines or habits that have been established through the use of spirituality apps. Most participants mentioned that the practices offered in the apps themselves became a routine for them. In other words, they integrated new habits into their daily life, for example, meditation, mood journaling or checking of one's horoscope. When "Jade" (*Calm*) was asked about how he perceives the app as influencing his daily routines, he responded: "Yeah, my week routine changed, so I usually always do it before I go to sleep when I don't have any plans, so for my own night-time routine, it's a part of it, yes." Here, Jade refers to meditation, which he practises with the app Calm. It seems that practising meditation became a new habit for the user that before using the app, he did not integrate it into his routine. This example illustrates that the use of this app alters his daily life by making time for new routines and implementing new habits.

Next, not only new habits were established, but also old ones were dismissed. For example, Charlotte (*Balance*) described that since she incorporated meditation before bedtime, she rejected her old habit of excessive scrolling: "I don´t have this routine of scrolling on the phone before sleeping anymore, which makes me feel really good." In general, participants described the alteration of routines as discarding something negative and

implementing something positive. Within this theme, it seems that having an app that offers new practices that are perceived as something precious, also served as a motivational factor to change undesired habits into more desired ones. The apps offered something that was personally valued by the user and was therefore worth it to implement into daily life.

Lastly, the difference between the 'Guidance Towards More Structure in Everyday Life' theme and this current theme should be clarified. Within this theme, participants talked about specific new routines and rituals that they started to implement into their daily life since using the spirituality apps. The 'Guidance Towards More Structure in Everyday Life' theme, was more about creating a general structure in everyday life, leading to a better organization. In addition, the focus of the 'Guidance Towards More Structure in Everyday Life' theme was also on how the apps were perceived as a motivational factor to stick to that structure. In sum, within one theme the focus was on guidance towards an overall structure, whereas the other theme's essence is about integrating specific rituals that are offered and practised with the apps.

Taking Time for Self-Care Activities

Within this theme, participants mentioned that through the use of spirituality apps, they integrate more activities in their daily life that serve a self-care purpose or are good for their mental well-being. Moreover, it seems that everyday decisions are made more consciously and with more awareness to protect personal welfare. This increased consciousness was described as being more in touch with oneself. Prioritising and listening to personal needs were often mentioned. To satisfy those needs and protect their personal welfare, participants actively took time for themselves during the day. This self-care time was mostly connected with exercising the practices on the spirituality apps. In other words, practising with the apps itself was perceived as self-care. Especially meditation apps were

mentioned in this regard. One example that illustrates this very well comes from Naomi (*Headspace*):

> "I would say that from just the fact that they offer meditation, the app gives me the possibility for being in touch with myself, my needs, my emotions, thoughts, so, I feel like, it helps me taking the time for myself at some points during the week, which I really need, and this positively influences my mental health".

This extract summarises the main points that were often mentioned by the participants when they talked about self-care: being in touch with oneself, actively making time for oneself, and ultimately improving mental well-being. Within this theme, the influence on everyday life takes place through this focus on self-care. Time is taken to implement certain rituals that are beneficial for oneself, or, in other words, 'Me-time' is incorporated into daily life. Moreover, behaviour is adjusted regarding protecting personal peace of mind, meaning to set healthy boundaries, and acting in one's own best interest. Within the theme of self-care, the way how the apps helped with these things appeared to be that they turned the awareness of the user more inwards, towards themselves and their feelings. This seemed to happen due to the app's spiritual practices, like meditation, where the focus is on observing emotions and thoughts or reading astrological predictions, which gives the opportunity to critically think about a situation and shift the point of view.

Discussion

In this study, a thematic analysis was conducted to find out about user experiences with apps for spirituality. Hereby, the focus was on the perceived influence on daily life due to the regular use of these apps. During the analysis, five themes were created. The first theme 'Helping with stressful daily situations' entails that the participants reported on using

the apps when facing difficult situations in everyday life. The theme 'Offering alternative perspectives to evaluate situations' includes descriptions of participants practising with the apps to evaluate situations from a different point of view. 'Guidance towards more structure in everyday life' involves the participants' descriptions of the apps as helpful to create structure, set everyday goals, and stick to plans. Next, within the theme 'Integrating new routines and replacing old habits with more desired ones' participants explained that practising with the apps created a new routine and undesired behaviour patterns were replaced. Lastly, the theme 'Taking time for self-care activities' entails the conscious decision of participants to integrate activities that serve a self-care purpose.

Before coming to final conclusions, it needs to be underlined that this study used interviews where participants clearly described an alteration of their daily lives due to the use of spiritual apps. Interviews, where participants did not talk about perceived changes, were excluded. Therefore, this research studied the ways that those people who did perceive a change made sense of it or described it. Conclusions about if spiritual apps generally had an influence on the user's life cannot be made.

The first pattern that became apparent within multiple themes was that participants reported on a stress-relieving function when using the apps. This stress-relieving function worked in different ways, for example, by offering relaxing exercises like meditation or showing positive future predictions. In addition, not only one specific but multiple spiritual apps seemed to offer this function to better cope with stress. Within the first theme 'Helping with stressful daily situations', especially meditation and mindfulness apps seem to teach users helpful techniques to cope with difficult situations also outside the app. Within the second theme 'Offering alternative perspectives to evaluate situations', participants reported that spiritual apps helped them to get a more positive perspective on negative situations which ultimately makes them feel better. These experiences seem to be congruent with

previous findings, which suggest that daily spiritual experiences can indeed serve as a coping mechanism to better deal with stress (Akbari & Hossaini, 2018; Whitehead & Bergeman, 2012). Moreover, Whitehead & Bergeman (2012) describe that spiritual experiences buffer the negative effect of perceived stress by providing a more optimistic point of view, which fits especially the participant's experiences within the second theme.

The astrological predictions in astrology apps also seemed to be able to help with stress, especially if they were positive and gave hope for better times to come. Das et al. (2022) explain that people interested in astrology often use the horoscope forecast in times of uncertainty, to receive some reassurance and stress relief. However, astrology apps also gave negative predictions for future events. Within the theme 'Offering alternative perspectives to evaluate situations', some participants' accounts pointed towards experiencing negative consequences when receiving those negative forecasts. This is mostly caused because they got obsessively worried about future predictions and adapted behaviour towards them. In their article, Das et al. (2022) also hint towards a "fortune-telling addiction", meaning that people might become excessively occupied with astrological future predictions, leading to negative consequences. Moreover, the finding that people often seemed to accept horoscope predictions at face value can be problematised. Especially in the case of negative predictions, the experiences of users showed that those apps can create more stress, instead of relieving it.

Within the themes 'Guidance towards more structure in everyday life' and 'Integrating new routines and replacing old habits with more desired ones' users reported that they are grateful that the apps provide a structure or a plan and motivate them to stick to it. In addition, it seemed that this function supported the participant's spiritual journey, as it accounted for the continuation of practising with spiritual apps. However, many participants' accounts pointed to the spiritual apps as creating pressure or disappointment when they miss a task. In their study, Gordon et al. (2019) explain that those set structures, that serve as some

kind of activity tracking, can have two sides: On the one hand, the pre-set goals and structures are important to keep the user motivated and are critically important for the user's success. On the other hand, when those goals cannot be met, or are perceived as unfitting or too hard, it can create frustration in the user. This often leads to the user giving up and stopping to practise with the app (Gordon et al., 2019). This description seems to be in line with the user's perception of the advantages and drawbacks of spiritual apps regarding providing a structure and a plan. Hereby, Gordon et al. (2019) suggest that apps should incorporate the function to tailor pre-set goals to personal preferences and habits, making it less likely to experience frustration because of unmet expectations.

Lastly, within the theme 'Taking time for self-care activities', the spiritual practices offered by the apps were perceived as activities that serve a self-care purpose. The National Institute of Mental Health (2022) underlines the importance of regularly caring for oneself as it can help to regulate stress, increase energy, and support general well-being. In their article, they mention self-care activities that fit the practices offered by the spirituality apps that were used in this study. For example, setting goals and priorities or focusing on positivity can be self-care activities (National Institute of Mental Health, 2022). This may suggest that implementing certain spiritual practices into daily life can be perceived as self-care. In her article, White (2016) calls this 'spiritual self-care' and explains that people turn to those spiritual practices to sustain personal well-being in times of difficulty. Hereby, she also refers to activities like meditation or developing inner peace and calmness, which were practices that participants in the current study did, with the help of spiritual apps. Consequently, it might be suggested that spirituality apps are tools that can help to support self-care. As self-care and well-being are closely connected (National Institute of Mental Health, 2022), the findings of this study illustrate the importance of further investigating spiritual apps as they seem to have the potential to support self-care and therefore well-being. However, it also

seemed that participants used the apps as a therapeutical tool, which needs to be viewed critically. The apps were not part of any clinical practice or suggested by a professional which underlines that the app's practices cannot be taken as a substitute for professional therapeutical advice and help.

Overall, the themes included the topic of enhancing personal welfare. First, users reported that the shifted evaluation of certain situations often helped them to see their situation in a more positive light and ultimately to stress less. In addition, through the apps, users were able to establish a routine, which was highly appreciated especially by participants who had trouble sticking to set goals. Next, more desired routines were integrated into daily life. And lastly, time was taken for self-care activities. This enhancement of general welfare in different domains relates to the statements of Gorichanaz (2022). In his article, he claims that spirituality can be seen as the driving force for a person's general well-being and the resonant basis for all other aspects of wellness (Gorichanaz, 2022). Moreover, he specifically refers to spirituality relating to mobile applications.

However, it needs to be acknowledged that within multiple themes, participants reported on negative experiences with the spiritual apps as well. More specifically, those apps seemed to be able to create more stress instead of relieving it. This stress enhancement worked in different ways and in different domains. For example, users reported that negative astrological predictions can create mental stress as they get obsessively occupied with those predictions. In addition, user's experiences point towards stress created by feeling pressured to stick to the app's structure and goals. Regarding those negative experiences, Falb and Pargament (2014) stress that spirituality is neither inherently beneficial nor problematic. It strongly depends on the person's belief system and how they interact with their spirituality (Falb & Pargament, 2014). This seemed to be the case for participants within the current study as well, as clear differences were perceived in how they made sense of the perceived

influences of spirituality apps. It may be hypothesised that the user's belief system and their conceptualisation of spirituality might influence the way in which they perceive and interpret the practises offered by spiritual apps.

Both negative and positive results of user experiences with spirituality apps can make important implications for clinical practice. It has previously been stated that spiritual practices are nowadays part of positive psychology and are commonly used in mental health care (Roussiau et al., 2022). Based on the interviews in this study, it seems that spirituality apps can promote some values and attributes that are part of the core beliefs of positive psychology. For example, Bohlmeijer and Hulsbergen (2018) describe that adopting an optimistic way of thinking is one goal within the practice of positive psychology because optimism has a major contribution to living an enjoyable and meaningful life. Within the second theme, participants mentioned that the alternative evaluation of situations is more optimistic by offering a more positive view. Furthermore, these spiritual apps seem to foster general pleasant emotions, like happiness, pride, or calm, which is a major key to positive living. Therefore, practising spirituality with spiritual apps might contribute to reaching the goals within positive psychology. However, it must be acknowledged that this study's results revealed negative aspects of spirituality apps as well. For example, it was found that besides positive emotions, using spiritual apps can create emotions like disappointment, distress, or pressure. Those negative aspects might contradict and impede the development of positive emotions and personal flourishing. Therefore, a clear recommendation to integrate these apps into mental health care cannot be made.

Because most publications on how spirituality may affect daily living focus on the numerous benefits of a spiritual life, it was relevant to also identify the perceived negative effects throughout this study. Therefore, the results contribute to a more in-depth picture of living a spiritual life, portraying both the perceived advantages and drawbacks. In addition,

the current study was concerned with user experiences of apps for spirituality and not just spirituality in general. This could be seen as an important contribution because spirituality apps are a relatively new field of research and, as the number of spiritual apps and people is rising, it seems to be important for future development. In addition, the qualitative data can also shed light on unintended consequences and problems relating to the topic, such as the negative effects the apps can have on the user's emotional state. In sum, this research can create a more complete understanding of how spirituality apps are perceived, used, and valued by users and what areas still need improvement.

Limitations and Future Research

There are limitations that need to be acknowledged. First, the mean age of participants was relatively low. Therefore, the results of this study might only represent the users' experiences, emotions, and evaluations within this age group. Because most participants were around 20 years old, future research could replicate this study with a different age group. This would also be interesting regarding the different relationships towards mobile applications of older people. Next, even if in qualitative research subjectivity is seen more as a resource than as a bias to battle, the characteristics and preoccupations of the researcher influenced how the data was interpreted. The researcher is personally very invested in the topic of spirituality and uses spiritual apps herself. Therefore, unconsciously matching and comparing her own experiences with the participant's experiences might have affected the analysis. One must keep in mind that a different researcher might have interpreted the interview data differently. Moreover, personal spiritual experiences can be a sensitive topic. Some participants might not be able to talk openly about their experiences or they give socially desired answers. A follow-up anonymised quantitative research that investigates the influence on the user's life could account for that limitation. Furthermore, future research could focus on analysing the

functions of the apps that were perceived as leading to more negative experiences. This could contribute to the development and improvement of spirituality apps.

Conclusion

Conclusively, this research offered insight into how users of spirituality apps perceive the apps to influence their daily life. The influence of the regular use of these apps was mostly perceived as something very beneficial and it seemed to be connected to enhancing personal welfare. Moreover, those benefits affected different domains of the participants' lives. However, some participants also reported about negative experiences with the apps. Those negative experiences seemed to be mostly related to creating more stress instead of relieving it. Both findings in this study can make important implications for implementing spirituality apps into mental health care. In sum, this research has shown that apps for spirituality have a great potential to be advantageous for well-being but are not inherently unproblematic.

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Appendix A

The Interview Protocol

Welcome to this interview about spiritual mobile applications. My name is ___ and I am doing this interview because____ (I am part of a group of students working on this project, and we will collect interview as data for our Bachelor's theses and eventually a research paper written by our supervisor.)

Have you read the information form? Are there any questions at this point? I will need your written consent by email in order to be able to use this interview.

Do I have your permission to record this interview? [If yes, turn on recorder.] Is it okay if I make some notes for myself during the interview?

Your participation in this interview is voluntary. Remember, you can choose to skip any question for any reason. You can also end the interview at any time.

The information I'm collecting today will be stored separately from any of your personally identifying information, such as name and email address. The interview will be transcribed and anonymized so that you cannot be identified from it.

Quotations from the interviews may be used in Bachelor's theses or publications based on this research, but all data will be presented anonymously. I will go to every length to make sure you cannot be identified, even implicitly, from your words or any locations or services you describe.

If you ever have any questions about this interview, you can contact me at____ or my supervisor Heidi Toivonen at h.k.toivonen@utwente.nl. If you have any questions about your rights as a research participant, you should contact my supervisor.

Now, let's start the interview! First, I would need some basic background information about you. Could you tell me your age, gender, and nationality as well as in which country do you live at the moment? Thanks, now we'll go to the actual interview questions.

1. Is "spirituality" a word that describes your beliefs and values well?

-If yes, would you like to tell me something about what it means to you?

-If not, what concept describes your beliefs and values better, and could you tell me something about what it means to you?

2. Do you recognize the term "New Age"? If yes, do you think it describes your views on spirituality?

3. Now, let's talk about spiritual mobile applications. What spiritual app (or apps?) do you use on a regular basis?

(If they use multiple apps, ask these questions for each app)

4. When did you start using this app?

5. What made you download this app?

6. Can you tell me something about why you use this app?

7. Next, I'm going to ask you to tell me something about how you use the app. Firstly, what kinds of features does the app have and how do you use them?

8. How often do you use it?

9. When you open the app, how long do you usually spend on it?

10. Tell me about the last time you used the app. Try to place yourself in that situation and share with me as much detail as you can.

-If you don't remember the last time you used the app, tell me about any recent time you recall

-Prompts: When was this? Why did you use the app? How did you use it? Who were you with? Where were you? How did it feel to you?

Note to the interviewer: Try to understand the situation, the nature of the interaction with the app. Try to get the interviewee discuss the meaning of the app, what it makes them think and feel.

11. Would you say using this app has had an impact on you or your life?

- On your thoughts, feelings, or experiences?

- Has using this app had an impact on your daily habits and/or routines?

12. Has using this app had an impact on your mental wellbeing?

- If yes, which functionalities have been beneficial/detrimental to your wellbeing?

13. Has using this app helped you in your social relationships?

- If yes, which functionalities have been helpful to your social relationships?

14. If you could change one thing about the app, what would it be?

15. How well do you think this app fits with your worldview? Is there something that isn't a fit?

NOTE: IF THERE IS ANOTHER APP TO BE DISCUSSED, GO BACK TO QUESTION 4!

16. Has the use of these apps inspired you to seek additional information on other spiritual practices outside the app?

17. Would you like to add any additional comments?

Appendix B

The Ethical Approval

UNIVERSITY OF TWENTE.
FACULTY BMS

221430 REQUEST FOR ETHICAL REVIEW

Request nr: 221430

Researcher: Toivonen, H.K.

Supervisor: -

Reviewer: Klooster, P.M. ten

Status: Approved by commission

Version: 2

1. START

A. TITLE AND CONTEXT OF THE RESEARCH PROJECT

1. What is the title of the research project? (max. 100 characters)

   User Experiences with Smartphone Apps for Spirituality

2. In which context will you conduct this research?

   Academic research conducted by a faculty member

3. Date of the application

   02-12-2022

5. Is this research project closely connected to a research project previously assessed by the BMS Ethics Committee?

   No/Unknown

B. CONTACT INFORMATION

6. Contact information for the lead researcher

   6a. Initials:

   H.K.

   6b. Surname:

   Toivonen

   6c. Education/Department (if applicable):

   BMS-PGT

   6d. Staff or Student number:

   77024080

   6e. Email address:

   h.k.toivonen@utwente.nl

   6f. Telephone number (during the research project):

+358407458418

6g. If additional researchers (students and/or staff) will be involved in carrying out this research, please name them:

h.k.toivonen@utwente.nl

6h. Have you completed a PhD degree?

Yes

8. Is one of the ethics committee reviewers involved in your research? Note: not everyone is a reviewer.

No

C. RESEARCH PROJECT DESCRIPTION

9a. Please provide a brief description (150 words max.) of the background and aim(s) of your research project in non-expert language.

This is an exploratory study on the experiences of people who use smartphone applications somehow connected to spirituality (New Age) lifestyle and practices (e.g. Saged, Sadhguru, Spiritual Stories Daily). Me and my co-researcher, Assistant Teaching Professor Tim Gorichanaz from the Drexel University College of Computing & Informatics, are planning to recruit people who are already using these apps and conduct semi-structured interviews with a phenomenological approach. The study aims to understand the role and function the users perceive the apps as having in their everyday life and meaning-making, as well as the connection of the app to their values and worldviews. While there is an increasing number of conceptual studies on modern spirituality and New Age, often from a critical standpoint, there are very few studies focusing on the experiences and perceptions of self-declared spiritual people themselves. Furthermore, while different mobile applications revolving around New Age beliefs and practices are becoming increasingly common, there are no studies investigating the use of these apps and the meanings given to them by the users. The study aims to contribute a) to our understanding of the deeper user experiences of mobile applications with a focus on a group of less known apps and b) to HCI field with a new methodological approach, which combines qualitative narrative analysis of the users' stories to a comparative analysis of the stories told by the apps (researcher construct based on the functionalities, visualities, and text materials included in the apps). Findings of the study will increase our understanding of the interplay of the increasingly common New Age lifestyles with technology use and thus, expand the current understanding of wellbeing applications towards the direction of spiritual wellbeing.

9b. Approximate starting date/end date of data collection:

Starting date: 2022-12-31

End date: 2023-12-30

9c. If applicable: indicate which external organization(s) has/have commissioned and/or provided funding for your research.

    Commissioning organization(s):

       `Not applicable`

    Funding organization(s):

       `Not applicable`

2. TYPE OF STUDY

Please select the type of study you plan to conduct:

```
I will be collecting new data from individuals acting as respondents,
interviewees, participants or informants.
```

4. RESEARCH INVOLVING THE COLLECTION OF NEW DATA

A: RESEARCH POPULATION

20. Please provide a brief description of the intended research population(s):

```
The research population covers adults who have already (prior to the
interview) been using any mobile application that they themselves
consider spiritual/New Age (some examples are apps such as Saged or
Sadhguru). Participants will be recruited using the researchers' own
networks, ads on social media, contacting the app developers, and
possibly by using the student pool SONA. The participants can be of
any nationality and live anywhere in the world, as long as they can
participate in an online interview conducted in English or in another
language in which the interviewer is fluent (Finnish, Swedish, etc.).
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21. How many individuals will be involved in your research?

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We expect to include at least 10 and up to 40 interview participants
altogether.
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22. Which characteristics must participants/sources possess in order to be included in your research?

```
The participants must be at least 18 years old, able to speak English
well enough to participate in an online interview (or native in some
other language in which the interviewer is fluent), as well as have
used for any period of time any of the various spiritual applications
out there. We will recruit participants that have been using an app
(or several of them) that the participants themselves define as
"spiritual". That is, we will not be pre-defining what
spirituality/New Age means or which apps they should have been using.
However, people who have only used apps that have to do with
traditional religion (e.g., any of the various Christian or Muslim
apps) will not be included in the study.
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23. Does this research specifically target minors (<16 years), people with cognitive impairments, people under institutional care (e.g. hospitals, nursing homes, prisons), specific ethnic groups, people in another country or any other special group that may be more vulnerable than the general population?

```
No
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24. Are you planning to recruit participants for your research through the BMS test subject pool, SONA

```
Yes
```

B. METHODS OF DATA COLLECTION

25. What is the best description of your research?

- Interview research

26. Please prove a brief yet sufficiently detailed overview of activities, as you would in the Procedure section of your thesis or paper. Among other things, please provide information about the information given to your research population, the manipulations (if applicable), the measures you use (at construct level), etc. in a way that is understandable for a relative lay person.

> The study set up is transparent: We will recruit participants that have been using any modern spirituality related smartphone application. The recruitment text will name some examples, such as Saged, Sadhguru, or Spiritual Stories Daily. The participants will take part in a semi-structured interview in an online setting such as Teams or Zoom. The interviews will be recorded. The questions asked will concern 1) the participant's definition and experiences of New Age spirituality and 2) their experiences of using a particular app or apps revolving around spirituality. The interview will start out by asking e.g., "How do you define spirituality?" and "What does "spirituality" mean to you?" and then proceed to more specific app-related questions such as "What app (or apps?) do you use as part of your spirituality?", "How do you use this app?", and lastly, "Tell me about the last time you used the app. Try to place yourself in that situation and share with me as much detail as you can."

How much time will each participant spend (mention the number of sessions/meetings in which they will participate and the time per session/meeting)?

> One interview of 30-60 minutes

C: BURDEN AND RISKS OF PARTICIPATION

27. Please provide a brief description of these burdens and/or risks and how you plan to minimize them:

> The participant burden is minimized by keeping the interview scheme as concise as possible and by only including questions that are needed to answer the research question. Since some of the interview questions are relatively personal (e.g., concerning their views on spirituality), it cannot be excluded that some participants might feel discomfort about this. To minimize any discomfort, the interview questions are kept relatively open to allow the participants themselves define at what depth they will be answering the questions; by making clear to all participants that they can discontinue the interview at any point without any consequences for them; and by conducting the interview itself in a sensitive and professional manner. Should any students participate in collecting the data, they will be trained beforehand to make sure they conduct it in the best way possible. In case the participants will feel any psychological discomfort during or after the interview, they are offered the chance to discuss with the interviewer and provided with both the main researchers' (Heidi Toivonen and Timothy Gorichanaz) contact information to be able to contact them later to discuss the interview.

28. Can the participants benefit from the research and/or their participation in any way?

    Yes

Please Explain:

    The interview is designed to offer the participants an interesting
    chance to have a reflective discussion on their personal views and
    lifestyle, from the perspective of their use of spiritual mobile
    applications.

29. Will the study expose the researcher to any risks (e.g. when collecting data in potentially dangerous environments or through dangerous activities, when dealing with sensitive or distressing topics, or when working in a setting that may pose 'lone worker' risks)?

    No

D. INFORMED CONSENT

30. Will you inform potential research participants (and/or their legal repsentative(s), in case of non-competent participants) about the aims, activities, burdens and risks of the research before they decide whether to take part in the research?

    Yes

Briefly clarify how:

    The participants will be provided with an information sheet, sent to
    them by email after they indicated interest in participating in the
    study. The sheet will explain the aim of the study, how the interview
    is conducted and what topics will be covered, as well as the
    participants' rights and how their anonymity will be protected.

32. How will you obtain the voluntary, informed consent of the research participants (or their legal repsentatives in case of non-competent participants)?

    Signed

33. Will you clearly inform research participants that they can withdraw from the research at any time without explanation/justification?

    Yes

34. Are the research participants somehow dependent on or in a subordinate position to the researcher(s) (e.g. students or relatives)?

    No

35. Will participants receive any rewards, incentives or payments for participating in the research?

    • No

36. In the interest of transparency, it is a good practice to inform participants about what will happen after their participation is completed. How will you inform participants about what will happen after their participation is concluded?

    • Participants will receive the researcher's contact details, so
      that they can contact the researcher if they have questions/would
      like to know more.
    • Other (Please specify):
        Participants who indicate their interest will receive the
        final publication(s) written using this interview data.

E. CONFIDENTIALITY AND ANONYMITY

37. Does the data collected contain personal identifiable information that can be traced back to specific individuals/organizations?

    Yes

38. Will all research data be anonymized before they are stored and analysed?

    Yes

39. Will you make use of audio or video recording?

```
Yes
```

- What steps have you taken to ensure safe audio/video data storage?

```
The videos will be stored in the UT Teams environment, in
a Teams folder accessible only to the researchers of the
project.
```

- At what point in the research will tapes/digital recordings/files be destroyed?

```
After the interview has been fully transcribed into text,
the original video will be destroyed.
```

5. DATA MANAGEMENT

```
•   I have read the UT Data policy.
•   I am aware of my responsibilities for the proper handling of
    data, regarding working with personal data, storage of data,
    sharing and presentation/publication of data.
```

6. OTHER POTENTIAL ETHICAL ISSUES/CONFLICTS OF INTEREST

40. Do you anticipate any other ethical issues/conflicts of interest in your research project that have not been previously noted in this application? Please state any issues and explain how you propose to deal with them. Additionally, if known indicate the purpose your results have (i.e. the results are used for e.g. policy, management, strategic or societal purposes).

```
I do not anticipate any ethical issues or conflicts of interest.
```

7. ATTACHMENTS

```
Participant information sheet.pdf, Informed consent sheet final.pdf
```

8. COMMENTS

```
-
```

9. CONCLUSION

Status: `Approved by commission`

The BMS ethical committee / Domain Humanities & Social Sciences has assessed the ethical aspects of your research project. On the basis of the information you provided, the committee does not have any ethical concerns regarding this research project. It is your responsibility to ensure that the research is carried out in line with the information provided in the application you submitted for ethical review. If you make changes to the proposal that affect the approach to research on humans, you must resubmit the changed project or grant agreement to the ethical committee with these changes highlighted.

Moreover, novel ethical issues may emerge while carrying out your research. It is important that you re-consider and discuss the ethical aspects and implications of your research regularly, and that you proceed as a responsible scientist.

Finally, your research is subject to regulations such as the EU General Data Protection Regulation (GDPR), the Code of Conduct for the use of personal data in Scientific Research by VSNU (the Association of Universities in the Netherlands), further codes of conduct that are applicable in your field, and the obligation to report a security incident (data breach or otherwise) at the UT.

Appendix C

The Consent Form

<u>Authors:</u> BMS Ethics Committee with input from Human Research Ethics TU Delft

<u>Last edited</u>: 20-01-2022

This is a research project concerning spiritual smartphone applications. The project is designed to gather information about people's experiences and thoughts on applications revolving around modern spirituality/New Age.

Consent Form for *User Experiences with Smartphone Apps for Spirituality*
YOU WILL BE GIVEN A COPY OF THIS INFORMED CONSENT FORM

Please tick the appropriate boxes	Yes	No
Taking part in the study		
I have read and understood the study information dated [02-12-2022], or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	□	□
I consent voluntarily to be a participant in this study. I understand that I will not be paid for my participation. I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason and without any negative consequences. If I decline to participate or withdraw from the study, no one will be told and it will not affect my relationship with the University of Twente or with Drexel University.	□	□
I understand that taking part in the study involves being interviewed on the Zoom or Teams video call platform. The interview will last approximately 30-60 minutes. Notes will be written during the interview. The interview will be audio- and video recorded, and after the video call has been transcribed into text, the recording will be destroyed.	□	□

Use of the information in the study

I understand that information I provide will be used for scientific articles published in academic journals. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. □   □

I agree that my words can be quoted in research articles. The research output will refer to me with a pseudonym and I will not be identifiable from the paper. □   □

I agree to be audio/video recorded. Yes/no □   □

I understand that most interviewees will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview. □   □

Future use and reuse of the information by others

I give permission for the transcribed, anonymized interview that I provide to be archived in an online repository by the University of Twente for 10 years, so it can be used for future research and learning. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions. Personal information collected about me that can identify me, such as [e.g. my name or where I live], will not be shared beyond the study team. □   □

Signatures

_____   _____   _____

Name of participant [printed]   Signature   Date

I have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting.

_____   _____   _____

Researcher name [printed]   Signature   Date

Study contact details for further information: h.k.toivonen@utwente.nl

Contact Information for Questions about Your Rights as a Research Participant

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee/domain Humanities & Social Sciences of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-hss@utwente.nl

Appendix D

Participant Information Sheet

Research Project: User Experiences with Smartphone Apps for Spirituality

Smartphone applications focusing on modern spirituality (New Age) have been increasing in number, but very little is known about the experiences of people using such apps. This study is conducted as a collaboration between Assistant Professor Heidi Toivonen from Psychology, Health, and Technology at the University of Twente, the Netherlands, and Assistant Teaching Professor Tim Gorichanaz from the College of Computing and Informatics at the Drexel University, Philadelphia, the US. We study the experiences of people who use spiritual applications such as Saged, Sadhguru, Spiritual Stories Daily, or any of the other applications available focusing on modern spirituality/New Age lifestyle and practices. Note that we are not recruiting participants using applications focused on traditional religions, such as any of the existing Christian or Muslim applications.

Participation in this research is voluntary and no incentive for participation will be provided. The research involves participating in a one-on-one interview on an online video call, using e.g. Zoom or Teams. The interview will be conducted either in English but also in other languages, in case the interviewer is fluent in it and it is the participants' first language. The interview will last for 30-60 minutes. The participant will be asked questions about their personal views on modern spirituality and their thoughts and experiences of using any smartphone application related to spirituality. The participant can decline to participate and withdraw from the research at any time, without any negative consequences, and without providing any reasons.

The interviews will be audio- and videorecorded. The interview data will be fully anonymized upon transcription, and all interviewees will be referred to with pseudonyms throughout the analysis and in the final written works produced from the data. Individual participants cannot be identified from the articles written using this data. The data will be stored online in a safe environment according to the rules of the University of Twente for a period of ten years. The interview data will be used for scientific research published in research articles written by Profs. Toivonen and Gorichanaz.

Responsible researchers and contact persons for questions about the research and rights of research participants: Assistant Professor Heidi Toivonen

h.k.toivonen@utwente.nl and Assistant Teaching Professor Tim Gorichanaz gorichanaz@drexel.edu

      If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee/domain Humanities & Social Sciences of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-hss@utwente.nl