

Lifestyle Apps: Can Gamification Simultaneously Engage Users and Enhance Business Value?

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ABSTRACT

Lifestyle apps are growing in popularity, but often struggle with engaging consumers while also creating business value. Due to poor user retention, a lack of strong marketing campaigns, or the absence of personalization features, among others, lifestyle apps need to strive for change to keep up with their competitors, and gamification may offer that possibility. Consequently, ten interviewees provided insight into their experience with lifestyle apps and gamification, and their answers were analyzed through the lens of the Gioia method—an inductive qualitative approach. This process yielded a set of general remarks that the participants seemed to agree upon, but also allowed room for unique ideas to surface, ultimately leading to an emergent model composed of Content, Identity, Accessibility, Motivation, and Ethical Concerns that all impact App Usage. Finally, a set of recommendations was created that account for all elements within the model, thus directly answering the research question. Overall, this paper provides a strong business-related basis for lifestyle apps, which can further be paired with additional research from different perspectives.

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Keywords

Lifestyle apps, mobile apps, health and wellbeing apps, gamification, game-like elements, gameful design, motivation, marketing, advertising, user needs, user experience, qualitative research, recommendations.

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1. Introduction

1.1. Research Focus & Interest

This paper wishes to understand the extent to which gamification can improve user engagement within lifestyle apps, and whether this can also benefit the company, with a specific focus on health and wellbeing apps. However, other types of lifestyle apps may also be mentioned if the context is appropriate.

From a scientific perspective, this paper can be used to fill gaps within the domain. While recent studies consider factors determining the intention to use health-related apps, few studies investigate what motivates users' continued intention (Bitrián et al., 2021; Yan et al., 2021). Moreover, gamification is a broad subject, and existing literature mainly focuses on the features that drive user engagement (Bitrián et al., 2021). Understanding how these features may be perceived by individuals as part of the whole experience can help explain the need for creating business value within the company.

Moreover, successfully identifying to what extent gamification can achieve these feats is greatly important. From a personal perspective, I have always used various lifestyle apps to track my sleeping habits, general mood, and personal wellbeing. Many people often use lifestyle apps without necessarily realizing that their particular app is a lifestyle app. Thus, I believe it is important to bring attention to the prevalence of lifestyle apps and to the importance of regular mental and physical self-help.

The research itself focuses on a younger demographic, namely the 18–29-year-old age group, and all participants must have at least used a lifestyle app in the past. However, understanding the context and the problem behind this topic requires a deeper focus into the basic elements of the domain.

1.2. Research Context, Background & Problem

Gamification is the concept of adding game-like elements within apps to increase user engagement and retention. Lifestyle apps are a common type of digital apps that people can download onto their devices. These generally aim to fulfill a user's lifestyle-related needs through self-betterment (Thornton et al., 2022). User engagement has a positive impact with mobile apps, and adopts a mediating role in the relationship between game elements and marketing outcomes (Bitrián et al., 2021).

Game-like elements are becoming more and more common in lifestyle apps. However, the degree to which gamification is implemented can be widely different depending on the value the app provides. Gamification has become quite prevalent in education-related apps, such as Duolingo, where users may earn experience and rewards for certain achievements. Thus, companies often establish the methods they wish to use to garner a user's attention (Sharma et al., 2019), which in this case involves the use of game-like elements.

The general mobile application market has grown rapidly and is predicted to

Even established lifestyle apps still struggle to find their footing. Strava is one of the largest physical health lifestyle apps in the world. Many lifestyle apps follow a freemium subscription model, in which the base app is free, but additional items or the full version of the app are often behind paywalls. This may come in the form of a one-time all-inclusive fee, but more often proposes a monthly or yearly fee which renews once expired. With over 95 million registered users, only 2-to-3 million are paid subscribers, which, during 2020, led to 90% of the company's revenue growth (Mahoney & Sewell, 2023).

During the pandemic, over 3 million people joined Strava at its peak in April and May 2020 (Mahoney & Sewell, 2023). However, Strava now faces the challenge of maintaining the same momentum. Thus, only now that the company is shifting its focus toward profit rather than growth, does it see a return on investment, with 2020 becoming its first profitable year (Borbely 2020; Mahoney & Sewell, 2023). Furthermore, 2021 became its most profitable year, reporting a total revenue of \$220 million (Mahoney & Sewell, 2023).

Thus, this example provides insight into the underlying issues of lifestyle apps, where the focus of the company may stunt other aspects that can help improve the app, such as financial profitability and business value.

continue growing in the future (Paget & Frosch, 2016). The health and fitness app market was worth \$8.21 billion in 2022, and is expected to rise to over \$35 billion by 2030, leading to a compound annual growth rate of 20.02% (Verified Market Research, 2023). Thus, lifestyle apps can be seen as an attractive opportunity as long as the app's user engagement can be transformed into business value. However, concepts such as gamification must be well implemented to have an effect on users, and there are many different factors to consider in order to successfully penetrate this market.

Moreover, many lifestyle apps struggle to become profitable. Searching for particular types of lifestyle apps on the App Store or the Google Play Store yields a plethora of results. This market saturation and abundance of choices means that, in turn, many of these apps struggle to make a consistent profit. Moreover, many of the most popular lifestyle apps are owned by industry giants, such as Adidas, Google, or Samsung, leaving little room for new or independent competitors.

However, a plan needs to be developed to fully understand the role gamification plays within the context of lifestyle apps. Additionally, this plan must include pre-existing knowledge of the domain, a methodology for acquiring and analyzing research data, and must mention the possibility of final recommendations.

1.3. Research Plan

First, a literature review synthesizing previously explored areas of this domain allows us to understand what has already been covered by previous research. However, this can also help discover the different factors that impact the success or failure of lifestyle apps. Therefore, gaps in previous research can serve as guidance for answering the core problem within the context of this paper.

Moreover, the use of semi-structured qualitative interviews within this research allows for data gathering to answer the research question. This type of data collection offers greater depth, as the interviewer can probe the interviewee's responses (Alshenqeeti, 2014). Moreover, having access to detailed perspectives regarding the topic at hand allows researchers to explore complex phenomena (Queirós et al., 2017). Thus, combining the literature review and the use of semi-structured qualitative interviews can provide room for a detailed analysis within the domain.

Following the Gioia method, the analysis of the interviewing process results in codes, which are grouped by themes. These themes reflect the common needs and wants of potential users. Moreover, the themes are also grouped by aggregate dimensions, which directly answer the research question. Thus, a list of recommendations is created, which provides different ideas for improving the business value of companies that create lifestyle apps.

1.4. Research Question

The context and situation of the topic, along with its core issue, have been established. Moreover, a clear focus and plan allow for the creation of a research question that aims to answer the core problem. Thus, the research question should be specific, precise, and clear, as an open-ended question allows room for justification. Since this paper wishes to relate gamification and business value to the concept of lifestyle apps, the research question can be phrased as follows:

To what extent can gamification impact lifestyle apps' business value?

2. Literature Review

The literature review section provides the opportunity for both researchers and readers to assess past investigations within a specific domain, and the extent to which these were covered. Thus, reviewing literature serves as the source of theory on which new papers can analyze and develop their own remarks. Moreover, newer papers aim to fill in gaps and cover new grounds left untouched by previous research.

However, conducting a literature review requires a methodology detailing the process. The methodology used in this paper is based on Wolfswinkel et al. (2013). Details regarding the search, selection, and analysis processes used to find and synthesize the papers chosen for this review can be found in *Appendix A*. The table below focuses on some of the most relevant and most cited papers for this literature review, and reveals the papers' concepts used within this research.

Study	Concepts				
	Motivation	Design	Marketing	Lifestyle/Mobile Apps	Gamification
Bitrián et al., 2021	✓			✓	✓
Deterding et al., 2011		✓		✓	✓
Hofacker et al., 2016	✓	✓	✓	✓	✓
Jilka et al., 2021		✓		✓	
Leclercq et al., 2020	✓	✓	✓		✓
Peng et al., 2016	✓		✓	✓	
Schell, 2008		✓			✓
Shabir et al., 2022				✓	✓
Wunderlich et al., 2020	✓	✓		✓	✓
Yan et al., 2021	✓		✓	✓	

Table 1. Concept Matrix, based on Wolfswinkel et al. (2013).

The literature review consists of three concepts: motivation, design, and marketing. These concepts are approached from two different perspectives: lifestyle apps, and gamification.

2.1. Introduction to the Literature Review

Lifestyle apps are downloadable applications that aim to improve a user's lifestyle. Such apps may include, but are not limited to: health and fitness apps, wellness apps, productivity and organization apps (e.g., time management, planning, sleep cycle), or mental health apps. These apps emphasize the need for consistency, engagement, and establishing a healthy routine for the user to improve the lifestyle aspects they wish to focus on (Thornton et al., 2022). Moreover, as mentioned in Section 1, the paper focuses specifically on health and wellbeing apps.

There are many popular lifestyle apps that serve different purposes. For instance, Fitbit and Strava focus on physical health and physical activity. On the other hand, Headspace and Calm focus on meditation and mental health. However, establishing and maintaining a routine that yields noticeable change can often be difficult, both mentally and physically (Arlinghaus & Johnston, 2018).

Nevertheless, a person who establishes a healthy routine can greatly impact their overall health and wellbeing (Arlinghaus & Johnston, 2018), and lifestyle apps aim to establish that healthy routine.

However, a user's regular engagement also benefits the company, as more traffic can lead towards increased sales and revenue. Therefore, increasing customer retention and achieving a higher repeat customer rate can positively influence both the user's lifestyle, and the company behind the app.

In terms of gamification, game-like elements are recently becoming more prevalent in lifestyle apps. However, serious gaming and gamification are two similar concepts with subtle differences. Serious gaming applies game design for a purpose other than entertainment, and is thus used to achieve change within the player (Spil et al., 2021). However, gamification simply refers to the use of game design elements within the context of mobile apps (Deterding et al., 2011; Hofacker et al., 2016).

Therefore, a review of existing literature regarding the various key elements of both lifestyle apps and gamification leads to a conclusion that allows readers to understand how these two notions truly work together. However, limitations should also be considered, meaning that observing such occurrences can help fill existing gaps in the literature.

2.2. Lifestyle Apps

While lifestyle apps provide content for individuals who wish to keep track of certain aspects of their lifestyle, barriers hindering certain people from extracting the full potential of these apps may have an impact (Shabir et al., 2022). The existing literature provides multiple variables that may influence the likelihood of usage of lifestyle apps, both positive and negative. Thus, lifestyle apps are considered from three different perspectives: motivation, design and features, and marketing.

2.2.1. Lifestyle apps and motivation

Perceived usefulness can be defined as “the degree to which an individual believes that using a particular system would enhance [their] performance” (Davis et al., 1992, p.320). However, technology adoption may have different reasons than continuance intention (Yan et al., 2021). Thus, creating an app requires the definition of a target audience, which can be both intrinsically and extrinsically motivated to continue using the app.

Intrinsic motivation may drive greater self-discipline, increasing user retention (Peng et al., 2016). This emerges from the user's search for novelty, entertainment, or new abilities (Souza-Júnior et al., 2016). Thus, some level of intrinsic motivation must be present within a consumer to continue using the app (Deterding, 2012). Developing routines can foster the intrinsic motivation needed to keep the momentum of using lifestyle apps going. (Laurie & Blandford, 2016).

From an extrinsic perspective, people can also be motivated by other individuals or their own personal environment (Souza-Júnior et al., 2016). Features such as ongoing streaks and rewards can be a good tool to have users return to the application (Sanda & Klimova, 2021). Thus, users must be encouraged to return through intrinsic or extrinsic motivation, and offering potential in-app rewards can serve as a solution (Sanda & Klimova, 2021).

Nevertheless, the effects of design for enhancing gamification and motivation should consider various factors, such as consumer experience, age, gender, and more (Venkatesh et al., 2012). Additionally, an especially important focus is given to user experience, as it can be considered a major factor in user continuance intention (Yan et al., 2021).

2.2.2. Lifestyle apps, design, and requirements

A customizable app that provides personalization features can enhance the user's experience (Larson et al., 2023). As individuals can change backgrounds, usernames, profile pictures, and more, they may turn their own account into a personal extension of themselves.

Perceived ease of use refers to “the degree to which a person believes that using a particular system is free of effort” (Davis, 1989, p.320). The design and interface of an application must be carefully

tailored to attract the pre-established target audience (Naslund & Aschbrenner, 2021). Thus, it is important to reduce obstacles and make the intended behavior as simple to perform as possible (Yan et al., 2021).

However, the intuitiveness of the design may also depend on the users themselves and the lifestyle app's chosen target demographic. For instance, elderly users may have trouble with cumbersome designs, as their needs are not specifically considered regarding the interface designs of most applications (Zhu et al., 2022). Thus, digital literacy can be a hindrance that is difficult to account for.

Users' perceived ease of use is an important predictor of users' continuance intention (Yan et al., 2021). For instance, users with limited eyesight may wish to increase the text size on the app (Zaina et al., 2022). If the application contains videos, audio descriptions could also be implemented for visually impaired people (Zaina et al., 2022). Moreover, colorblind users may have a harder time differentiating certain patterns on the app, which can be solved by implementing specific color contrast options (Zaina et al., 2022). Thus, accessibility features can increase perceived ease of use by offering users extra settings to adjust the app to their liking.

Additionally, trust should be an integral part of the app's design. While all companies can be victims of data breaches, larger companies may use additional financial capital to increase the security of their servers. Both Apple and Android provide comprehensive guidelines for developers to make their apps secure by tackling outside threats (e.g., the *Android Developers* website provides this information regarding app quality).

Ever since the pandemic, users have become more aware of their rights to privacy (Shabir et al., 2022), meaning individuals may be more wary regarding their data (Jilka et al., 2021), and companies should be as transparent as possible. For instance, nearly all mental health apps available ask users to provide personal data, and to consent to its usage (Jilka et al., 2021). Overall resources for mental health services can be scarce, and mobile applications can serve as a tool to provide these services (Jilka et al., 2021). However, readability analyses of health apps' privacy policies indicate that longer documents often contain harder sections to comprehend, as noted by their low readability scores (Ennis & Wykes, 2016). In the study led by Jilka et al. (2021), only 1 out of 196 mental health application terms and conditions did not include jargon, which may interfere with the user's understanding of what they consent to. Reducing the size of lengthy terms and conditions, and simplifying their language, can help increase user awareness regarding the material they consent to (Jilka et al., 2021). However, action can also be taken by consumers, as tools such as AI or certain dedicated websites provide the ability to acquire summaries of terms and conditions, thus allowing users to understand the way data is processed by specific companies.

In terms of compliance, following regional, national, and international regulations is also important. For instance, only 48% of mental health apps' privacy policies were updated after the EU's GDPR laws came into effect (Jilka et al., 2021).

Finally, while advertisements are used for monetization purposes, they may impact the overall ease of use. Perceived ad intrusiveness is the user's psychological response triggered by ads that disrupt their cognitive processes (Hühn et al., 2017). Nevertheless, if a personalized advert appears in a credible context or uses icons that signal trustworthiness, there is a higher likelihood of consumers trusting the source (Aguirre et al., 2015).

2.2.3. Lifestyle apps and marketing

Advertisements are often used to create visibility and awareness (Chakraborty et al., 2022). Once an app is ready to be released to the public, potential users need to be targeted. General marketing strategies can be applied to increase download rates, such as social media marketing, or buzz marketing (Jayaram et al., 2015). Moreover, the creation of social media accounts and channels that post regular updates and interact with users directly may also greatly benefit the brand and make reaching customers easier (Jayaram et al., 2015).

However, marketing requires investments into search engine optimization (SEO) to allow potential users and customers to find websites and social media accounts (Yang et al., 2015). Within the context of lifestyle apps, app store optimization (ASO) also needs to be implemented. ASO improves the app's visibility by boosting the chosen app's ranking in the app store search results (Davazdahemami et al., 2023). Both SEO and ASO are based on the principle of click-through rates (CTR), which can be boosted with the careful selection of pertinent keywords. It is difficult to determine the exact reasons for which apps appear at the top of user searches, but using ASO can help smaller apps keep a sustained presence at the top and improve their download rates (Davazdahemami et al., 2023).

However, fierce competition in the app market leaves little room within an already congested advertising space (Davazdahemami et al., 2023). Thus, it might be hard for most apps, especially during their early stages, to be promoted by methods other than costly advertisements (Davazdahemami et al., 2023).

Free apps often attract more users, but they also have the option to reduce their price or to switch from paid to free, and vice versa. Switching from paid to free is twice as common as switching from free to paid (Jang & Chung, 2021). This can reinvigorate interest in an app, keeping customers engaged (Jang & Chung, 2021). The opposite has the contrary effect, generally drastically decreasing the number of downloads (Jang & Chung, 2021). However, reviews that may emerge out of such situations cannot be controlled by the company, and the app's rating may also play a role in people's decisions to download the app.

Lifestyle apps that do not have strong advertising campaigns are unlikely to be adopted (Shabir et al., 2022). Thus, the low penetration rate of certain lifestyle apps may result from a lack of awareness (Peng et al., 2016). In 2012, only 19% of smartphone users reported having a health app on their phones (Peng et al., 2016). As of February 2022, over 350,000 healthcare apps are available, and yet only 3 in 10 US adults use health apps regularly, with 56% of US adults never having used this technology before (Petrovic, 2023). Thus, a combination of saturation and lack of awareness explains the reason for which lifestyle apps need to make a harder push when marketing their brand, as promotion is highly important for increasing download rates.

However, generating downloads can also prove challenging if large companies dominate the market share. Branding offers apps a unique image to set them apart from their competitors. The study led by Katsumata et al. (2023) identifies three key features of application brand equity:

- **Brand Awareness:** This can be understood as the SEO, ASO, and advertising campaigns used to spread awareness about the app, within the context of this research.
- **Perceived Quality:** This refers to the design of the app, the fulfillment of promises regarding updates, and, based on Jilka et al. (2021), the compliance with privacy and regulation procedures. Thus, it impacts the brand's reputation.
- **Brand Loyalty:** Individuals who would be a great fit for the application are targeted based on social, cultural, or personal reasons. Brand ambassadors can use their reach to promote the app, but these ambassadors and their fans should relate to the core theme of the lifestyle app if the company wishes to increase download rates.

Thus, having a well-identified target audience in mind is a crucial step in designing the application's content. For a brand to be successful, it must be recognizable. Davis (2010, pp.18–19), identifies five levels of branding sophistication, on which companies may be positioned to indicate the depth of their branding:



Figure 1. Branding Sophistication Hierarchy, based on Davis (2010).

- The first level includes companies that are poorly branded.
- The second level includes companies that have a basic identity, meaning they have their own logo and slogan, and occasionally advertise on the internet.
- The third level offers a more diverse marketing communication program and aims to actively develop brand awareness.
- The fourth level includes companies using multiple marketing communication tools, and sophisticated product management.
- The highest level includes companies that inject the brand into the lifestyles of stakeholders through the use of in-depth customer experiences.

The higher the sophistication, the fewer the number of companies present on that level (Davis, 2010). Traditionally, only larger, well-funded companies can invest higher amounts of resources into marketing and R&D (Davis, 2010). However, newer forms of media make reaching customers and building a brand much easier and less expensive than ever before, meaning companies in lower stages of brand sophistication can build brands in less traditional ways (Davis, 2010). With the rise of social media platforms, some companies have adopted informal methods of marketing, that directly relate to the consumer in an effort to build friendly relations (Al-Subhi, 2022).

However, it is the link between these three notions within lifestyle apps, and the concept of gamification, that must be made clear. Since gamification is the tool used by lifestyle apps that this paper investigates, determining its fit within the revenue-generating context of lifestyle apps is highly important.

2.3. Gamification

The existing literature is analyzed through the same lenses as lifestyle apps: motivation, design and features, and marketing. However, gamification and serious gaming are similar concepts (Deterding et al., 2011), meaning that a clear distinction must first be made between the two, so that they are not used interchangeably.

2.3.1. The distinction between gamification and serious gaming

Gamification was previously defined as the use of game design elements within the context of mobile apps (Deterding et al., 2011; Hofacker et al., 2016). Thus, design elements aim to enhance non-game goods and services, hoping to increase overall user engagement (Hofacker et al., 2016).

Serious gaming was previously defined as the implementation of game design for a purpose other than entertainment, aiming to achieve change within the player (Spil et al., 2021). Thus, serious games are more akin to traditional games, offering additional content beyond pure entertainment (Spil et al., 2021).

The term gamification originated in the digital media industry, with its first documented use dating back to 2008 (Deterding et al., 2011). However, it became much more popular in 2010, and has managed to institutionalize itself as the common terminology ever since (Deterding et al., 2011).

Gamification encourages value-creating behaviors, such as increased consumption and engagement, higher loyalty, or product advocacy (Hofacker et al., 2016). The term demarcates a distinct group of phenomena relating to the “complex of gamefulness, gameful interaction, and gameful design, which are different from the more established concepts of playfulness, playful interaction, or design for playfulness” (Deterding et al., 2011). The distinction between serious gaming and gamification can be visualized with the help of a graph that focuses on two axes:

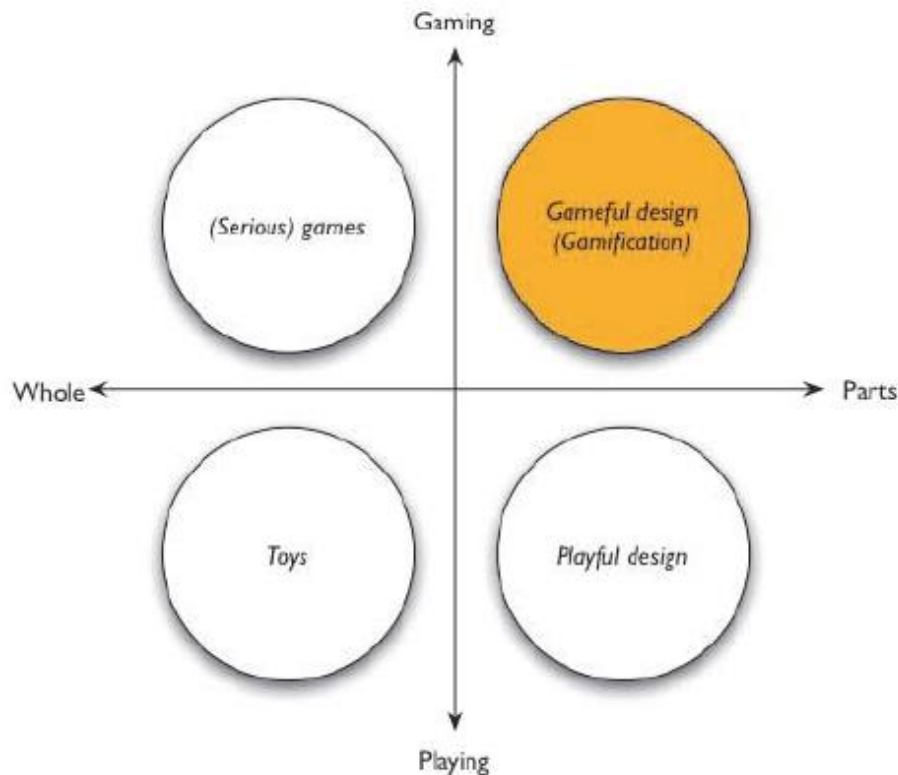


Figure 2. Visualization of the distinction between gamification and serious gaming, by Deterding et al. (2011).

The Y-axis extends from *gaming* at the top, to *playing* at the bottom. Gamification relates to games, rather than the idea of playfulness, since playing can be interpreted as a broader category that contains but is still different from games (Deterding et al., 2011). Deterding et al. (2011) remarks Caillois’s concept of *paidia* (Greek for education, related to playing), and *ludus* (Latin for play or game). “*Paidia* denotes a more freeform, expressive, improvisational, even ‘tumultuous’ recombination of behaviors and meanings,” while “*ludus* captures playing structured by rules and competitive strife towards goals” (Deterding et al., 2011).

The X-axis is the main focus for distinguishing the two concepts, and extends from *parts* to *whole*. Gamification refers to elements, rather than fully-fledged games (Deterding et al., 2011). This can be understood as the fact that apps containing only parts of the gaming experience fall under *gamification*. Conversely, a game that adds, for instance, educational elements (i.e., goes beyond entertainment), already has the *whole* gaming experience, and is thus classified as a *serious game*.

2.3.2. Gamification and design

Game-like elements may assist users in making healthier physical or mental choices, and improving or developing certain skills (Hofacker et al., 2016). Gamification on mobile platforms may have many potential outcomes, as it can entertain and retain customers, accelerate repurchases, and increase in-store engagement (Hofacker et al., 2016). Gamification literature and practice used to focus on points and awards, often neglecting other game design elements (Hofacker et al., 2016). However, by using the *Elemental Tetrad Model* proposed by Schell (2008), designers can encourage the positive marketing outcomes of gamification (Hofacker et al., 2016):

- The story provides a narrative format that aims to add meaning to the action (Hofacker et al., 2016). Some older games did not need to have a story, as they were interpretable (Schell, 2008). Within the context of gamification, the story is also interpretable, as it is not predefined, thus meaning it is created by the user and the way they use the app.
- The mechanics are the methods that allow the story to progress. Thus, this includes rewards and incentive structures that make the player advance and feel a sense of accomplishment for their achievements (Hofacker et al., 2016). Furthermore, as the player learns the mechanics of the game, they know what to expect and which rewards to receive after a certain time (Schell, 2008; Hofacker et al., 2016).
- The aesthetics refer to the user interface's design. For many games, visual imagery is highly important for an immersive experience (Hofacker et al., 2016). The design needs to be memorable (Schell, 2008), meaning that users are easily able to identify the game or app from a single picture or sound.
- The technology relates to the innovativeness. "All new games need to be innovative in some way" (Schell, 2008), meaning that standing out from competitors signifies bringing new ideas and new ways of doing things for customers.

When focusing on the mechanics, there are various levels of game design elements that can be considered. Moreover, their appropriate implementation is crucial for successful gamification within lifestyle apps. Thus, Deterding et al. (2011) proposes five levels of game design elements:

Level	Description	Example
<i>Game interface design patterns</i>	Common, successful interaction design components and design solutions for a known problem in a context, including prototypical implementations	Badge, leaderboard, level
<i>Game design patterns and mechanics</i>	Commonly reoccurring parts of the design of a game that concern gameplay	Time constraint, limited resources, turns
<i>Game design principles and heuristics</i>	Evaluative guidelines to approach a design problem or analyze a given design solution	Enduring play, clear goals, variety of game styles
<i>Game models</i>	Conceptual models of the components of games or game experience	MDA; challenge, fantasy, curiosity; game design atoms; CEGE
<i>Game design methods</i>	Game design-specific practices and processes	Playtesting, playcentric design, value conscious game design

Figure 3. Levels of Game Design Elements, from Deterding et al. (2011).

These elements are used for purposes beyond pure entertainment, as they aim to stimulate certain behaviors and achieve practical results (Deterding et al., 2011). Overall, audiovisual elements engage the human senses and can improve the effectiveness of mobile gamification (Hofacker et al., 2016). Bright block graphics, simple layouts, and minimal text can also serve this purpose (Hofacker et al., 2016).

It had been estimated that by 2020, 85% of people’s routines would be based on common gamification elements, meaning most companies would have implemented gamification in the near future (Koivisto & Hamari, 2019). For instance, the market for wearable devices such as smartwatches was long predicted to explode (Stern, 2015). Wearables are often used for physical health and fitness, as they make tracking such data easier (Hofacker et al., 2016), although the size of these devices may provide an additional challenge toward implementing a lifestyle app on much smaller screens. Nevertheless, many apps already present on wearable devices use gamification principles, such as visual cues and targets, to increase engagement and overall usage (Hofacker et al., 2016).

2.3.3. Gamification and motivation

Engaged users are motivated to continue using the app and its features. Rewards document progress, and serve as visual evidence for an achievement (Hofacker et al., 2016). Research shows that extrinsically motivated people respond well to virtual rewards (Nevskaya & Albuquerque, 2012). In-game rewards are often created with the knowledge that they drive extrinsic motivation (Hofacker et al., 2016). While mobile gamification serves many roles—as it can create value through the benefits of learning and education, skill development, and information acquisition—it can also create value through social interaction (Nambisian & Baron, 2009). Thus, with many apps often featuring likes, comments, friend requests, and more, a social environment of reciprocal exchange serves as an additional tool for extrinsic motivation.

Moreover, rewards whose contents are unknown may motivate people more than known rewards (Shen et al., 2015). Even if the expected value of the uncertain reward is lower, people tend to concentrate on the process of obtaining it rather than its outcome (Shen et al., 2015). Users tend to

increase their efforts the closer they get to a reward, as its acquisition becomes more realistic (Kivetz et al., 2006).

However, increasing user effort can also be achieved by providing visual finish lines (Hofacker et al., 2016). Flow experience is a state of concentration in which the individual's focus is high enough that it amounts to *absolute absorption* in the activity (Yan et al., 2021). Therefore, flow theory means that difficulty and rewards need to be proportional to one another, so that the correct balance between the challenge and the individual's skill can be achieved (Csikszentmihalyi et al., 2005; Hofacker 2016). Moreover, clear goals, feedback, and the aforementioned balance between skills and challenge are important for flow experience (Csikszentmihalyi et al., 2005; Yan et al., 2021).

A large reward for an achievement that requires little-to-no difficulty also provides little-to-no gratification, and may ultimately lead to boredom (Csikszentmihalyi, 2014; Hofacker et al., 2016). The opposite is also true, as a small reward for a difficult task may feel unfair to a user (Albuquerque & Nevskaya, 2012).

Loyalty programs are another type of reward system. These are often implemented on apps made for stores, where their effectiveness may depend on the consumer's distance from their nearest location (Hofacker et al., 2016). Within the context of lifestyle apps, repeat return rates can be rewarded with additional bonuses. Thus, while the regular purpose of loyalty programs is to promote company offers, their core goal is to improve consumer perception.

Overall, the gamified entity must already have a core value. Hence, gamification used for the purpose of amplifying intrinsic motivation will give companies a lasting competitive edge in their markets (Deterding, 2012).

2.3.4. Gamification and marketing

Many businesses are affected by new mobile marketing and technology trends nowadays (Hofacker et al., 2016), meaning that mobile marketing strategies must be set to attract and motivate consumers to use the app. Mobile marketing is defined as “the two-way or multi-way communication and promotion of an offer between a firm and its customers using a mobile medium, device, or technology” (Shankar & Balasubramanian, 2009, p.118).

Mobile devices allow vendors to enter the customer's personal environment, rather than the other way around (Hofacker et al., 2016). Thus, this closer connection benefits both parties, as vendors are more likely to be noticed by customers, and customers are more likely to find apps they are interested in.

The prevalence of mobile technology makes it well-suited for gamification. As previously mentioned, gamification on mobile platforms has the potential to entertain and retain customers, and accelerate repurchases and in-store engagement (Hofacker et al., 2016). However, recent generations are much more accustomed to technology, and are often heavy users of both game technology and mobile phones, making them easier to reach (Jang et al., 2018). Nevertheless, even though gamification can be used for both enjoyment and entertainment, it may lower the overall ease of use for people who are not accustomed to game-like mechanics (Hofacker et al., 2016).

Moreover, in-app advertising and purchases can also be used to generate external revenue. However, this may devalue the app, since these can be seen as disrupting and intrusive by drawing attention away from the act of playing (Hofacker et al., 2016; Truong & Simmons, 2010). Bitrián et al. (2021) concluded that engaged users have greater intentions of continuing to use gamified mobile apps and recommending them to others, both through mouth-to-mouth advertising and positive reviews, thus meaning that this process can be hindered by the intrusive nature of such features. If game advertising is not goal-related, players are less likely to click on and interact with the advertisement other than seeing it (Hofacker et al., 2016). If there is a higher level of immersion, the user may be more prone to viewing advertising information as unobtrusive due to the fewer psychological and attentional resources available (Hofacker et al., 2016; Vohs & Heatherton, 2000).

Thus, the fundamentals of flow experience, game design, and marketing strategies need to be applied within the appropriate context. However, these core concepts present limitations that need to be tackled and answered within this paper.

2.4. Lifestyle Apps & Gamification: Limitations

Research suggests that the attractiveness of gamification elements relies on consumers' existing game use and knowledge (Hartmann et al., 2012). Thus, the extent to which gamification enhances loyalty, engagement, and motivation may not always be entirely clear (Hofacker et al., 2016). Overall, empirical research regarding the effects of gamification on user engagement within mobile apps is still limited (Bitrián et al., 2021; Hofacker et al., 2016). Moreover, even the core definition of engagement has often seen revision, accounting for various sub-elements, such as brand engagement, customer engagement, user engagement, and more (Bitrián et al., 2021).

Additionally, the cultural appeal of gamification may differ. A lack of understanding surrounds many communities' low sustained participation rates (Leclercq et al., 2020). Thus, infrequent usage is marked by occurrences such as the *lurking phenomenon*, in which users view content, but do not engage with it or post any additional material of their own (Leclercq et al., 2020).

Ethical concerns arise regarding the potentially negative effects of the inclusion of online communities, as online cyberbullying can be a prominent negative influence on individuals (Leclercq et al., 2020). However, there are also negative effects for the company (Leclercq et al., 2020), as bad word-of-mouth arising from allegations of prominent cyberbullying can affect the app's popularity. Thus, the notion of flow can be disrupted.

Moreover, outside pressure may undermine intrinsic motivation, thus undermining gamification (Hamari et al., 2015). Therefore, low-engaged users receive limited benefits from community interactions beyond gamification rewards (Leclercq, 2020).

Hofacker et al. (2016) proposes the use of the fundamental game design postulated by Schell (2008), called the *Elemental Tetrad Model*. Moreover, Bitrián et al. (2021) provides proof for gamification as a source of increased user engagement. Additionally, many studies discuss gamification only as a research context, and only examine a set of game elements (Bitrián et al., 2021). However, the solution proposed by Hofacker et al. (2016)—using the fundamentals of game design within apps rather than picking certain specific gamification elements—is a proposition that would benefit from more investigation.

Bitrián et al. (2021) uses Wunderlich et al. (2020) to demarcate the four levels at which gamification has the potential to impact: in-game, intra-organizational, customer, and transformative. Wunderlich et al. (2020) proposes the following model of the impact of gamification on these four aspects, which, in this paper, can be used within the specific context of lifestyle apps:

Impact of gamification on

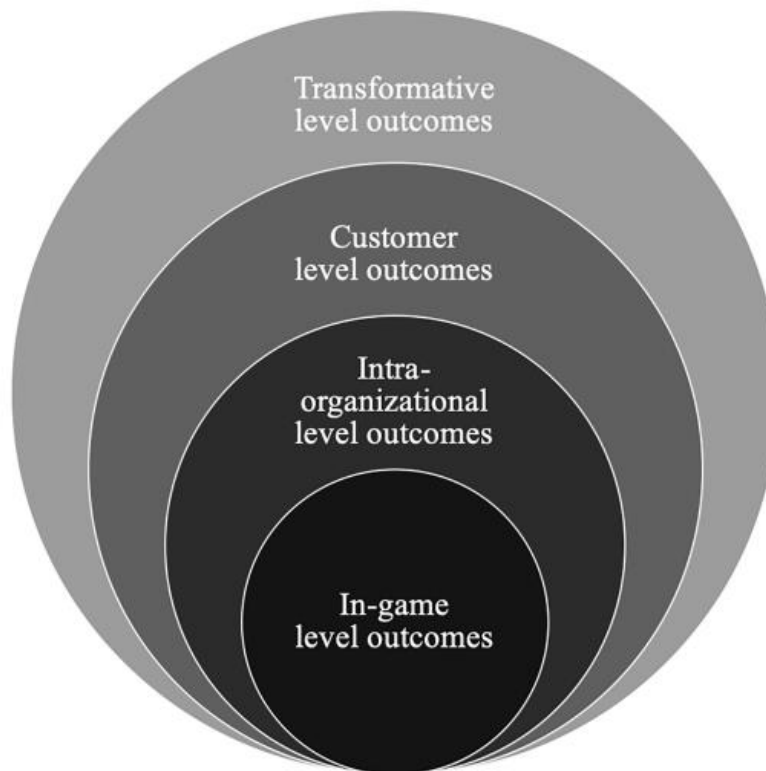


Figure 4. Emerging research areas, from Wunderlich et al. (2020).

The in-game level refers to gamification's enhancement of the user's experience by increasing their effort, persistence, and usage intention (Bitrián et al., 2021; Wunderlich et al., 2020). The intra-organizational level relates to the potential use of gamification to motivate employees, thus leading to enhanced productivity (Wunderlich et al., 2020). The customer level accounts for possible positive effects of customer loyalty, participation, and download intention, as gamification has been shown to increase marketing effectiveness (Bitrián et al., 2021). The transformative level relates to the promotion of health, exercise, and sustainable energy consumption (Bitrián et al., 2021). At all these levels, gamification is linked to engagement (Bitrián et al., 2021).

Thus, within the context of lifestyle apps, knowing and properly analyzing the level of the research area relating to the purpose of the app can lead towards a positive impact of gamification on the domain. Overall, the fundamentals the three overarching themes present in both lifestyle apps and gamification have been established: motivation, design, and marketing. However, analyzing the literature review and using a set of examples reflecting real-life implementation can further provide an overarching view.

2.5. Gamification in Lifestyle Apps: Creating an Engaging App – Analysis & Conclusion

The exponential growth of technology has brought to light the concept of gamification, and as it becomes more and more popular and accepted, it seems that its purpose also grows clearer. Moreover, new technology can also serve as a tool for app engagement. A much more personal device, such as smartwatches, may allow wearers to be closer to lifestyle apps than ever before, by accessing the app's content faster than if they were to unlock their phones. However, while this example can provide benefits in terms of wider reach, the intriguing nature of gamification and lifestyle apps lies in their connection with one another and the three topics of the literature review.

In terms of motivation, encouragement can inspire users to keep their engagement rate high. Features such as ongoing streaks and rewards can be a good tool for apps to improve customer return rates (Sanda & Klimova, 2021). A step-by-step approach consisting of various levels, rewards, and mechanics such as health and experience points all encourage the user to be consistent. Moreover, a soft reminder from time to time can encourage people to open an app and use it. However, too many pop-up notifications may cause irritation. Thus, if a person has not used the app for an extended period of time, it is best to remind them only once in a while, rather than doing so repeatedly.

For instance, BeReal is an app that sends notifications at random times during the day, so that the photo they take in that moment is natural and unscripted. Users that post a picture on time are rewarded with the ability to post two more until the next day's notification appears. Thus, a balance of challenge and reward is necessary.

In terms of design, visual cues serve as reminders to open unread notifications, as they allow users to deduce the importance of the information they are presented with, and are often more effective than auditory or vibrational cues (Mashhadi et al., 2014). Therefore, creating a well-structured app with intuitive design depends on the elements incorporated within the lifestyle app and how they are utilized. The design and structure of the app, as well as its content, can be deciding factors regarding user continuance intention. Thus, carefully planned gamification tactics can be used to help lifestyle apps thrive in a saturated market.

However, generations that are not as used to game-like features may struggle to stay motivated, and vice versa. Thus, using gamification may restrict the target demographic to more technology-savvy users.

From a marketing perspective, traditional advertising may run the risk of irritation and ad avoidance, as the user's needs are not considered within the appropriate context (Hühn et al., 2017). Many apps feature advertisements that take up a significant proportion of the screen, if not entirely pausing the experience and breaking the gameplay loop. Therefore, notifications that include promotions, advertisements, or other information that does not account for the user and their needs may negatively impact the user experience.

However, within appropriate contexts, lifestyle apps can seamlessly incorporate advertisements into a virtual environment without disrupting their core gameplay loop, or causing intrusion. For instance, a nutrition brand's advertisement within a fitness app could be presented as a helpful article on maintaining a balanced diet. Ensuring the promotional content aligns with the app's theme, and visualizing it in a natural way, allows users to acquire potentially valuable information.

In conclusion, motivation can be achieved in various ways, and aims to keep user engagement high. However, designing a well-structured app is highly important to keep users engaged. Moreover, clustered apps, such as those

An example that perfectly encapsulates all the discussed elements falls somewhere between gamification and serious gaming. Pokémon Go is a game that encourages users to explore the outside world at their own pace. It aligns with the concept of a serious game, as Pokémon Go is a game that wishes to achieve change in the player. However, its content is rich with pieces of game-like elements and mechanics, such as rewards, experience, objectives, and more. The unique combination of these elements, along with the emphasis on active change, sets this app apart.

From a financial perspective, with over \$1.21 billion in revenue in 2021 and over 570 million total downloads since its launch in 2016 (Iqbal, 2023), the game became an instant success. Pokémon Go is often seen as the game that popularized the augmented reality genre, with similar games never quite managing to replicate its success.

However, Pokémon Go has been struggling to maintain its player base. Apart from minor resurgences in 2018 and 2019, the app never quite reached the same level of popularity it had in 2016 (Iqbal, 2023).

Nevertheless, Pokémon Go's success can provide a blueprint for game-like elements that can be introduced within lifestyle apps, many of which have been discussed in the literature review itself. However, ultimately, lifestyle apps need to innovate and seamlessly integrate themselves into the user's life, becoming as essential as they aspire to be.

with intrusive advertisements, may cause irritation for the user. Thus, the user's needs must be considered.

However, limitations were also identified within the literature review, both in terms of the areas existing literature covers, and the limitations that gamification within lifestyle apps may have. Thus, the theoretical basis provided within this chapter now allows for the development of a methodology, which shapes the data gathering and analysis processes that aim to fill in the gaps in research and answer the research question.

3. Interviews & Methodology

Establishing a methodology for designing, conducting, and analyzing interviews helps gather the needed information to answer the research question. The chosen interviewing methodology for data gathering is the semi-structured interview, as it encourages clear answers, but also allows room for interviewees to justify their responses if they need to do so (Alshenqeeti, 2014).

Since this paper aims to understand user needs from a deeper perspective, acquired data needs discernible emerging patterns. The methodology proposed in Gioia et al. (2012), also known as the Gioia method, can help analyze natural language texts and extract relevant information.

3.1. Interview Approach

The interviewing guide within this paper considers various scientific recommendations to create questions and foster a positive and appropriate atmosphere. Moreover, the semi-structured interview takes advantage of the unpredictability of human speech, allowing additional time for impromptu questions that can further deepen the knowledge acquired from the interviews. Overall, three separate stages are established:

- The pre-interview stage: when the interviewing process is prepared.
- The interview stage: when the interviews occur.
- The post-interview stage: when the interview transcripts are edited and prepared for data analysis.

3.1.1. Pre-Interview

Sampling procedures are much less rigid in qualitative research (Coyne, 1997). In the initial stages of a study, researchers go to the group they believe seeks to guide the emerging theory, thus involving the purposeful selection of a sample (Coyne, 1997; Glaser, 1978). Purposeful sampling denotes the act of seeking individuals who can provide rich and diverse perspectives (Coyne, 1997).

To avoid saturation, the number of participants must be carefully chosen (Saunders et al., 2017). Saturation is defined as the inability to further provide additional data whereby the researcher can develop properties of the category (Glaser & Strauss, 1967, p.61). Judging when to stop sampling relates to the category's theoretical saturation, as similar instances that appear repeatedly indicate a saturated category (Glaser & Strauss, 1967, p.61). “[The researcher] goes out of [their] way to look for groups that stretch [the] diversity of data as far as possible, just to make certain that saturation is based on the widest possible range of data in the category.” (Glaser & Strauss, 1967, p.61). Thus, a sample size too small may mean that all data was not exhausted, while too many interviews may lead to repetitive information being gathered, potentially impeding the progress of the research paper.

Moreover, the structure of the interview must also be established. The lower degree of structure imposed by the nature of semi-structured interviews allows for open questions with a focus on deeper and more specific subjects, rather than abstractions and general opinions (DiCicco-Bloom & Crabtree, 2006).

Additionally, the interview framework must contain respectful questions that are on topic and help answer the research question. This means that participants must be allowed to express their opinions without feeling that they were led towards a specific answer (DiCicco-Bloom & Crabtree, 2006), as avoiding leading questions can offer unique and diverse perspectives. Moreover, fallacies such as double-barreled questions (i.e., asking two questions simultaneously but only allowing one possible answer) must also be avoided (Bassili & Scott, 1996). Ideally, questions should signify the same thing to all respondents, thus reinforcing the need for properly phrased, unambiguous questions (Fowler, 1992). Overall, participant-oriented, non-leading, clearly worded, single-faceted, and open-ended questions achieve the richest possible data (Kallio et al., 2016).

Thus, the interview guide is a tool for data collection that establishes the questions and the direction of the interview (Kallio et al., 2016). The idea for the interview guide within the context of this paper is loosely adapted from Kallio et al. (2016):

- The introduction explains the purpose and the need for this study. Additionally, participants must also understand their rights and must have already signed an informed consent form. Thus, if consent is given, the interviews can be recorded, and their transcripts analyzed. The template of the informed consent form is available in *Appendix B*.
- The questions consist of main themes and follow-up questions, which allow for a deeper understanding of the subject if necessary (Kallio et al., 2016). Moreover, interview questions also serve to cover identified gaps in the existing literature.
- A closing section is also useful to ensure that potentially meaningful ideas are not missed. Additionally, the guide should not be too long, and should be followed during the interview process.

3.1.2. During the interview

A comfortable and non-threatening environment that encourages open communication must be implemented once the interview begins. The interviewer should limit themselves to the questions they ask, as well as the introduction and closing as specified in their interviewing guide, in order to allow interviewees to fully speak their minds. The interviewer may provide additional explanations or reformulate the questions if some details are unclear to the interviewee (DiCicco-Bloom & Crabtree, 2006).

The structure of the questions should grow in depth the closer the interview nears its end. Thus, questions are simple in the beginning, and slowly become more complex and thought-provoking as the interview progresses. The interviewer can improve the likelihood of gathering relevant data by actively listening and probing for more information if necessary (Kallio et al., 2016). As the interviewer follows their guide, any additional or unexpected questions and answers must be included in the final interview transcript. Thus, the researcher may wish to take notes or write down timestamps to remember certain answers that could prove particularly useful during the analysis process.

3.1.3. Post-Interview

For this study, Microsoft Teams is used to automatically transcribe interviews, which are only edited for minor transcription errors. Thus, verbatim transcripts are able to accurately capture the context and tone of the interviewee by including repeated words, stutters, or any additional elements of natural speech (McMullin, 2021). Replaying these recordings and actively listening can help recall information, recognize cues, and reveal information that may have otherwise been missed (McMullin, 2021).

Applying the Gioia method involves extracting codes from quotes, which are considered *first-order concepts* (Gioia et al., 2012). These concepts are then grouped into various *second-order themes*, and then further generalized into *aggregate dimensions* that directly provide answers to the research question (Gioia et al., 2012). A detailed version of this process can be found in Section 3.3.1.

Moreover, researchers must actively create reliable and trustworthy results. Feedback from interviewees on transcripts can ensure accuracy and coherence within the research approach (McMullin, 2021). Thus, since interpretations imply subjectivity, using feedback loops allows interviewees to give their own interpretations, actively seeking contradictions in data. Moreover, quotations of anonymized interviewee answers improve immersion in data (McMullin, 2021), and also give them a voice within the final paper, further increasing overall trustworthiness. One last idea is the use of tables, as they provide a clear view of the data collection and analysis processes, and enhance trustworthiness in qualitative research (Cloutier & Ravasi, 2020). Thus, being aware of potential biases and actively mediating them by integrating feedback and trust-enhancing methods can help improve the quality of the findings.

Ultimately, an emergent model is created around these findings to better visualize the ideas surrounding the research question. All these steps need to be considered and reported in a clear manner when discussing the process of the interviews. Thus, the findings are elaborated through the concepts, themes and dimensions that emerge from these interviews.

3.2. Interviewing Guide

The interviews took place in December 2023 and January 2024 through Microsoft Teams. As mentioned previously, consent is explicitly asked for, and audio and transcripts are registered through the software.

During the introduction round, it is expected to find out the participant's name, explain the purpose of the research, and ask for consent. If consent is not given, the interview cannot begin. Any personal details that are not relevant for the research or were not explicitly asked for by the questions of the interview framework are censored within the transcripts to keep participants anonymous.

- Basic introduction: Greet the interviewee, and thank them for their time and participation. Ask for their name, introduce yourself, and make sure the participant is ready for the interview. Quickly asking about the participant's day or how they feel before the interview begins can foster a positive environment.
- Explaining the purpose and need: This paper investigates the use of gamification within lifestyle apps as a tool for improving company business value. It seems that even well-known lifestyle apps, such as Strava for instance, often struggle with profitability. Overall, questions within this interview relate to how various aspects may impact a user's perception of the app, in order to increase overall user traffic and engagement. Thus, there is a need to know the extent to which gamification can impact lifestyle apps.
- Reminding participants of their rights: Participants can be informed about their rights on two separate occasions. If the participant signed the informed consent form a long time before the interview began, then they were reminded of their rights before the interview. Otherwise, participants who signed the form before the interview began were aware of their rights. These include the right to anonymity, to provide feedback, to withdraw from the research, and more (see *Appendix B*). Moreover, participants should also know that they are being recorded, and that their responses will be kept anonymous and used for analysis in order to answer the paper's research question.

During the questioning round, the interviewee is told that the questions are split into 3 categories: personal, lifestyle apps, and the effects of gamification. The interviewer and interviewee must be respectful and patient with one another, as a cordial interview is more likely to produce relevant and useful results.

Additionally, if a question is based on a paper or aims to fill its gaps, the papers mentioned apply to at least one of the questions or sub-questions. Within the context of these interviews, the questions are based on the papers from Table 1, with a specific focus on the following papers: Bitrián et al. (2021); Deterding et al. (2011); Hofacker et al. (2016); Jilka et al. (2021); Leclercq et al. (2020); Shabir et al. (2022). The interview template is available in *Appendix C*.

During the closing round, the interviewer asks if there is anything that the participant would like to add or mention regarding the subject, as there could still be relevant information that the questions may not have directly targeted. In the end, the interviewer stops the recording, thanks the interviewee for their time and participation once again, reminds them about their rights, and mentions that a copy of the transcript will be available soon if they wish to provide any feedback.

Once the interviews are completed and the transcripts are prepared, the data can be analyzed. However, the Gioia method contains many intricacies that researchers need to be aware of.

3.3. Data Analysis Methodology

Qualitative research is often criticized for its biases and for lacking rigor (Anderson, 2010). However, assessing the extent to which claims are supported by convincing evidence helps provide much more unbiased, in-depth, and reliable results (Anderson, 2010). Thus, qualitative research has become much more trusted over the past decades, as researchers are able to showcase evidence based on beliefs in an objective manner by accounting for variables that may impact reliability (Anderson, 2010).

3.3.1. The Gioia methodology

The Gioia method is often used in qualitative research to explore and reveal the richness of acquired data (Gioia et al., 2012). The qualitative rigor of the Gioia method links well with the literature review process proposed by Wolfswinkel et al. (2013). Both papers are founded on the notion of grounded theory (Gioia et al., 2012; Wolfswinkel et al., 2013), thus offering a continuous flow for the literature review and methodology chapters of the paper.

The Gioia method is a holistic approach to concept development, as it often balances the conflicting need to create new concepts inductively, while meeting the rigorous standards of highly regarded academic journals (Magnani & Gioia, 2023). The inductive approach starts from a wide amount of general data, and identifies patterns that can be categorized into larger overarching themes (Gioia et al., 2012).

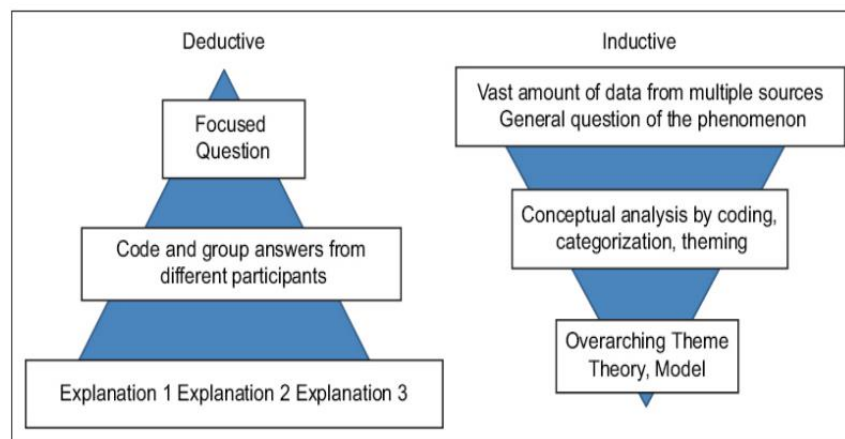


Figure 5. The difference between the deductive and inductive approaches to qualitative data analysis, from Ravindran (2019).

Then, the patterns are coded, and these codes serve as the *first-order concepts* (Gioia et al., 2012), as they represent the backbone of the analysis process. Afterward, researchers are able to group multiple concepts into various *second-order themes*.

However, visualizing the created groups can help researchers find structure in their results. Within the analysis process of this paper, the transcripts were turned into tables that solely present the questions asked by the interviewer and the answers given by the interviewees. Each interview's table is split into two sections, with the left side containing the questions and answers, and the right side containing codes extracted from the interviewee's answers. This choice was made to improve readability and to visualize the coding process. Additionally, for ease-of-use purposes, the data analysis was conducted simply by using Microsoft Word for highlighting data and Microsoft Excel for logging codes.

<p>Q3. Are there any personal factors that encouraged you to start using lifestyle apps regularly?</p> <p>So the the reason I started using Waking Up was because I've heard about the multiple benefits that meditation has, both in terms of like the clarity of mind that can give you, but also just it's good to like help with like anxiety or any like negative emotions you can have on the daily basis. So that was one of the reasons that I started using it and also I just heard it's one of the better apps for meditation as well from YouTube. And I do spend a lot of time on YouTube and yeah, that's where I heard about it from.</p> <p>a. What effects has this app had on you? Both positive and negative answers are welcomed.</p> <p>Well, I don't think it has had any negative effects apart from the fact that I have to spend \$100 on it. But yeah, in terms of I, I would say that the benefits were quite clear even after the first, umm, the first week I started using the app, I could already feel much more like just calm and, also able to like concentrate a lot better and also just able to enjoy the moment more. That's one of the main things that meditation helps with quite a bit as well, so.</p>	<p>1</p> <p>2</p> <p>1</p>
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Figure 6. Example of establishing first-order concepts through quotes from verbatim transcripts.

Finally, the overall data structure is established, which includes first-order concepts, second-order themes, as well as aggregate dimensions (Gioia et al., 2012). Aggregate dimensions are encompassing notions that arise from one or multiple second-order themes (Gioia et al., 2012). Thus, second-order themes can be further generalized into these aggregate dimensions.

1	Lifestyle apps' content provides numerous personal benefits regarding their purpose
2	The cost of the premium version can be a deterrent (including its acquisition process)
3	The organization of content may impact the user (+/-)
4	Repetitiveness may negatively impact user perception
5	Features and options improve retention (including GLE and customization)
6	The intrusiveness of ads has an impact on the user (which is generally negative)

Figure 7. Example of established second-order themes per code.

Please note that in the figure above, each number represents a first-order concept, and each color represents a second-order theme. Please refer to *Appendix D* for the list of all first-order concepts, color-coded by second-order themes.

Additionally, it is advantageous for the three parts of the data structure to be mutually exclusive and collectively exhaustive (MECE), meaning that all concepts or data records must be included in one category, and that data cannot be part of multiple categories simultaneously. Once this process is completed, the data structure itself must be made clear through additional visualization techniques, thus ensuring that the findings are represented as accurately as possible.

3.3.2. Validity, reliability, and sample size

According to Anderson (2010), validity in qualitative research can be defined as “the extent to which the findings are an accurate representation of the phenomena they are intended to represent.” Moreover, also according to Anderson (2010), reliability in qualitative research can be defined as “the reproducibility of the findings.”

Within the context of this research, validity is addressed through respondent validation, and reliability is showcased through the quotes of the respondents. Thus, each respondent was given the opportunity to review their transcript and provide feedback. Moreover, respondents are also given a voice within the paper through anonymous quotes in an effort to improve the trustworthiness of the process. Additionally, *Appendix E* contains a sample interview for these purposes as well.

Overall, the research is easily reproducible, as the requirements for participation are not demanding. The chosen participants were all between 18–29 years old, and had used or were currently using lifestyle apps. Two trial interviews were conducted before the final interviewing framework was established. Out of 18 potential candidates contacted, 10 interviews were conducted, and 4 out of 18 individuals mentioned that they had never used lifestyle apps before. Thus, potential candidates were asked whether they met these requirements before the interview could proceed. However, it can be noted that some of the participants were unaware of their usage of lifestyle apps. Nevertheless, if a participant does not have significant experience with the research topic, they might provide answers that may not offer sufficient information for data analysis.

For a qualitative approach using semi-structured interviews and an inductive methodology such as the Gioia method, a sample size of 10 interviewees proved to achieve saturation. This notion was noticed progressively throughout the interviews, as similar answers slowly became more and more apparent in the latter interviewees' responses. Nonetheless, interesting answers were provided by all interviewees, which were then coded and analyzed in order to extract meaningful recommendations.

4. Findings

4.1. Data Analysis Process Results

The coding process begins by writing informant-centric codes based on selected quotes from interviewee answers (Gioia et al., 2012). Each code is assigned a number for identification purposes, and is further labeled in a different color to showcase which second-order theme it reflects, as seen in Section 3.3.1. However, this process may create an abundance of codes, meaning that similar codes are either rephrased or grouped together for efficiency, depending on the context. For instance, initially, Code #1 (Lifestyle apps' content provides numerous personal benefits regarding the purpose of the app) was similar to Code #22 (The usage of lifestyle apps for changing habits). Since changing habits can be understood as a personal benefit, Code #22 was merged into Code #1. Thus, out of a total of 43 codes, 10 were considered duplicates, ultimately leading to 33 total first-order concepts identified within 241 quotes.

While these first-order concepts are distinct from one another, similarities can still be noticed, which is why they can be further generalized into second-order themes. Thus, a total of 8 second-order themes were identified. Moreover, in order to abide by MECE rules, each first-order concept may only fit within one second-order theme.

However, these themes can be generalized even further. Aggregate dimensions represent theoretically overarching domains, as themes may also overlap (Gioia et al., 2012). The aggregate dimensions ultimately link back to the research question. Thus, a total of 5 aggregate dimensions were identified within the final data structure, which is represented by a conceptual diagram that has been split up per aggregate dimension to improve readability.

Please note that in the figures concerning the data structure (i.e., figures 8 through 12), game-like elements and lifestyle app(s) are abbreviated to *GLE* and *LA(s)*, respectively. Moreover, certain first-order concepts may have either a positive or negative effect depending on certain situations. These are marked with a (+/-) sign.

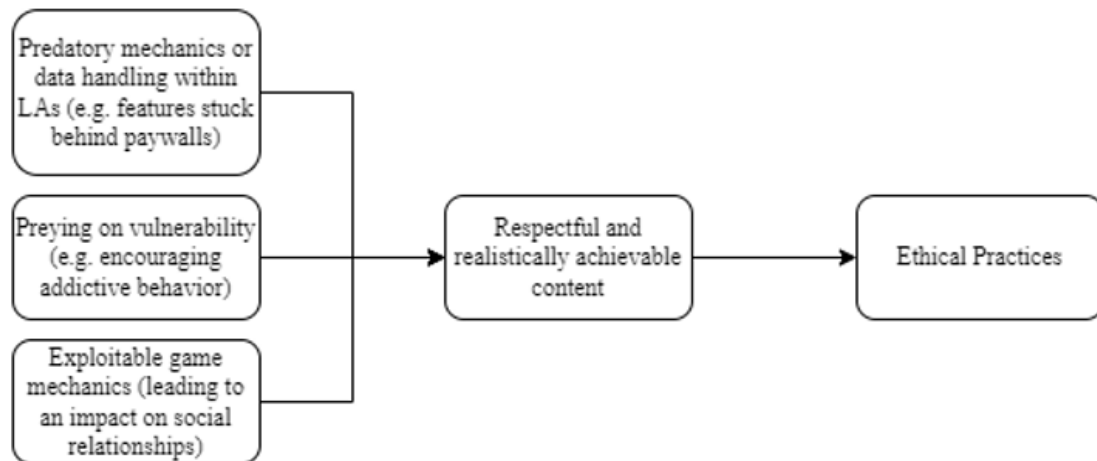


Figure 8. Example of one aggregate dimension, its themes, and its concepts (Ethical Practices).

Within the *Respectful and realistically achievable content* theme, the concepts look at various aspects that could impact ethical practices. For instance, Interviewee 7 noted the presence of features stuck behind paywalls, which he considered to be a deterrent to further engagement with the app.

“I don't really like having, you know, things locked through progression. That basically means that you need to sink in like X amount of time to unlock everything in in an app,” said Interviewee 7 regarding question 8b.

All three first-order concepts cover the main aspects that were identified within the interviews. Thus, elements within first-order concepts and second-order themes are clearly linked to one another, and these relationships ultimately allow them to be grouped within aggregate dimensions. While there can also be more than one second-order theme per aggregate dimension, this particular second-order theme was the only concept identified that could accurately be further generalized into the respective aggregate dimension.

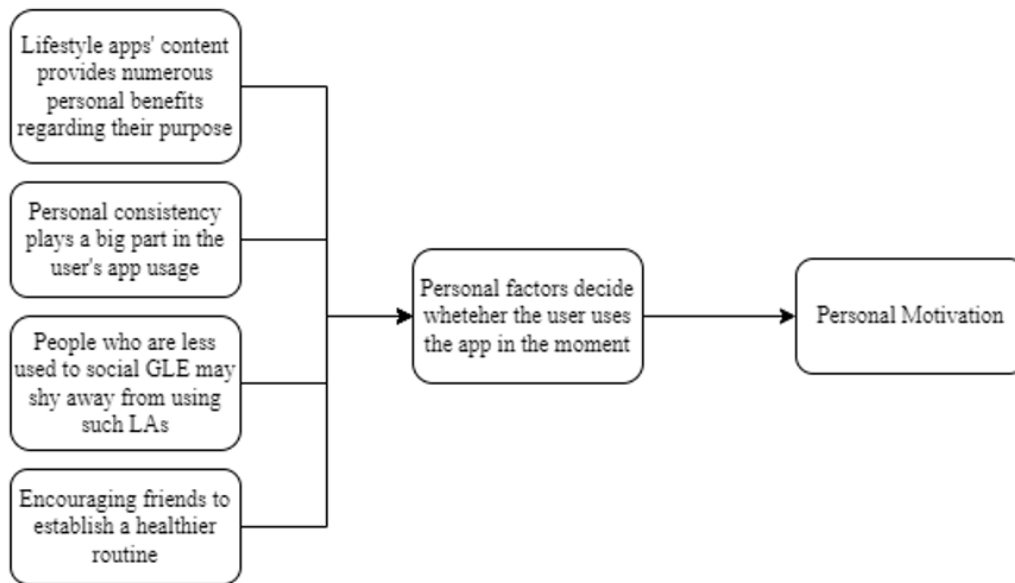


Figure 9. The *Personal Motivation* Aggregate Dimension.

Many participants mentioned the importance of their day-to-day activities having an impact on their lifestyle app usage. Thus, this dimension tackles both intrinsic and extrinsic motivation, with a particular focus on the possibility of the user’s social circle impacting motivation. For instance, regarding the code *Encouraging friends to establish a healthier routine*, Interviewee 7 noted the possibility for lifestyle apps to bring friends together when participating in outdoor activities.

“Yeah, there has been actually uh, you know, we used to go on hikes with with my friends and the the step counter or like the the speed thing on the app would be really useful,” said Interviewee 7 when answering question 6.

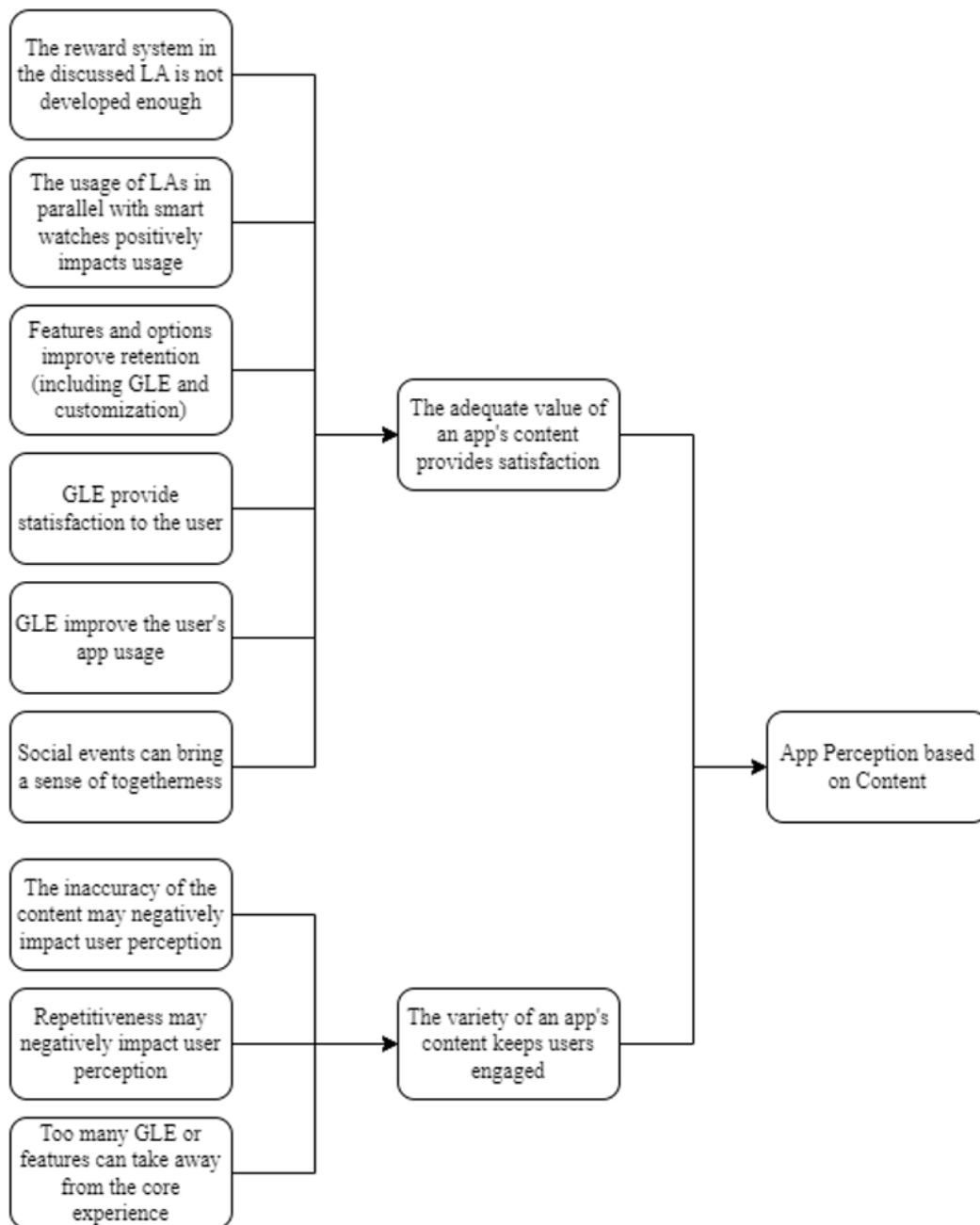


Figure 10. The *App Perception Based on Content* Aggregate Dimension.

The importance of content was highly reflected among interviewee answers. However, the offer and value of the content should not be undermined. Thus, this dimension represents the use of content and its variety to impact the usage of the app.

“The one of the main things I’m interested in or looking for it’s it’s more like what’s the apps— What’s the actual value that I get from the product, and not the way it’s delivered,” said Interview 1 for question 10a.

The quote above fits in the *features and options improve retention* first-order code. Here, the interviewee seeks value from the core of the app, which is made out of the basic features that the company creating the app wishes to put on display.

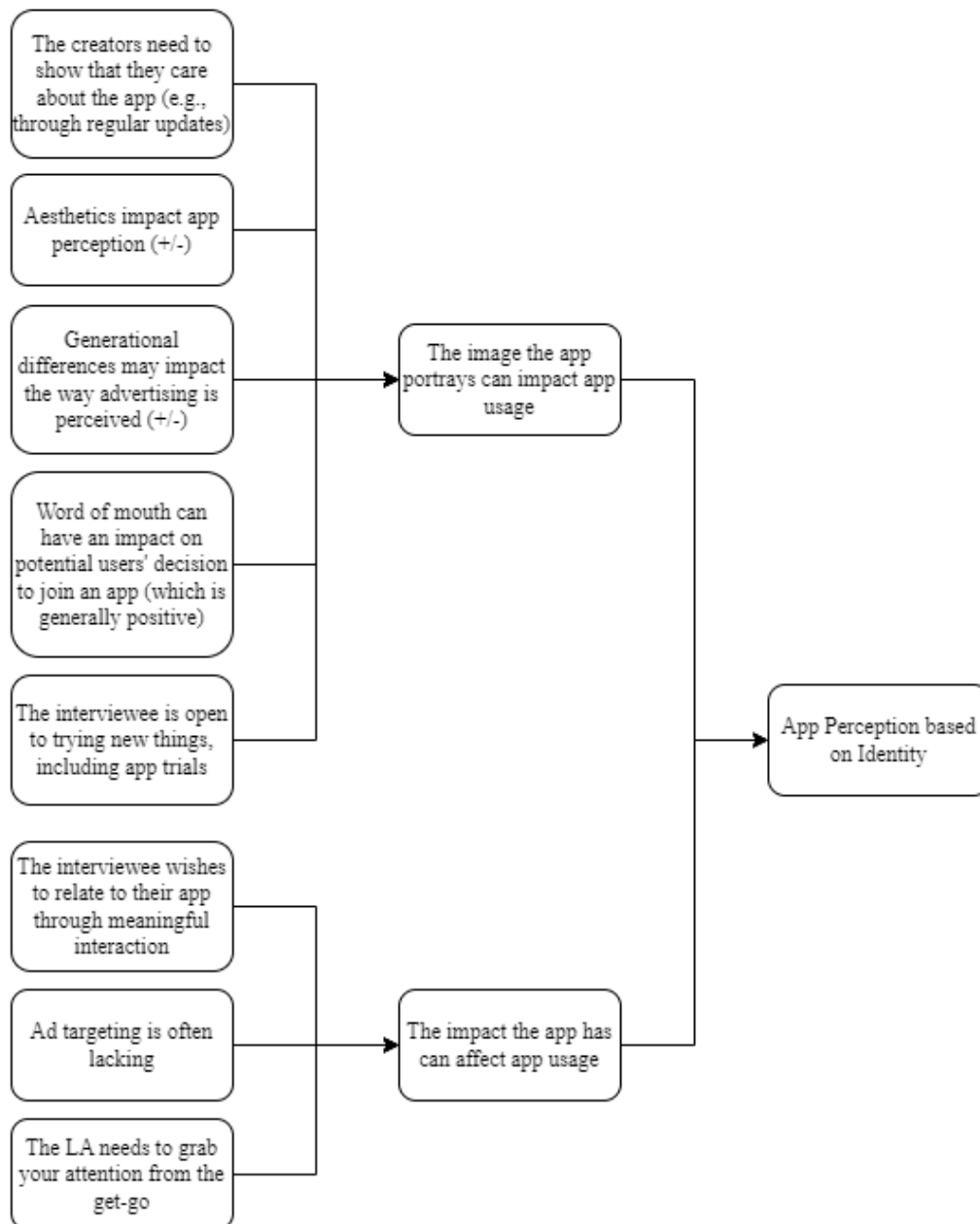


Figure 11. The *App Perception Based on Identity* Aggregate Dimension.

This dimension focuses on app perception from two perspectives. First, the impact the app’s identity has on the user should always be considered. Second, the user’s own identity should not be forgotten, as potential customers often seek a unique selling factor that allows them to identify themselves with said app. Thus, knowing the abundance of lifestyle apps on the market, companies must differentiate their products.

“And I think they kind of need something in their marketing style to provoke people to use their apps. [...] For me it's kind of like they're all the same,” Interviewee 6 said for question 5ai.

The quote above encompasses the duality of the word *identity*, as the interviewee seeks meaningful interaction based on their own beliefs. Thus, the lack of a unique factor leads this interviewee to perceive many lifestyle apps as similar to one another.

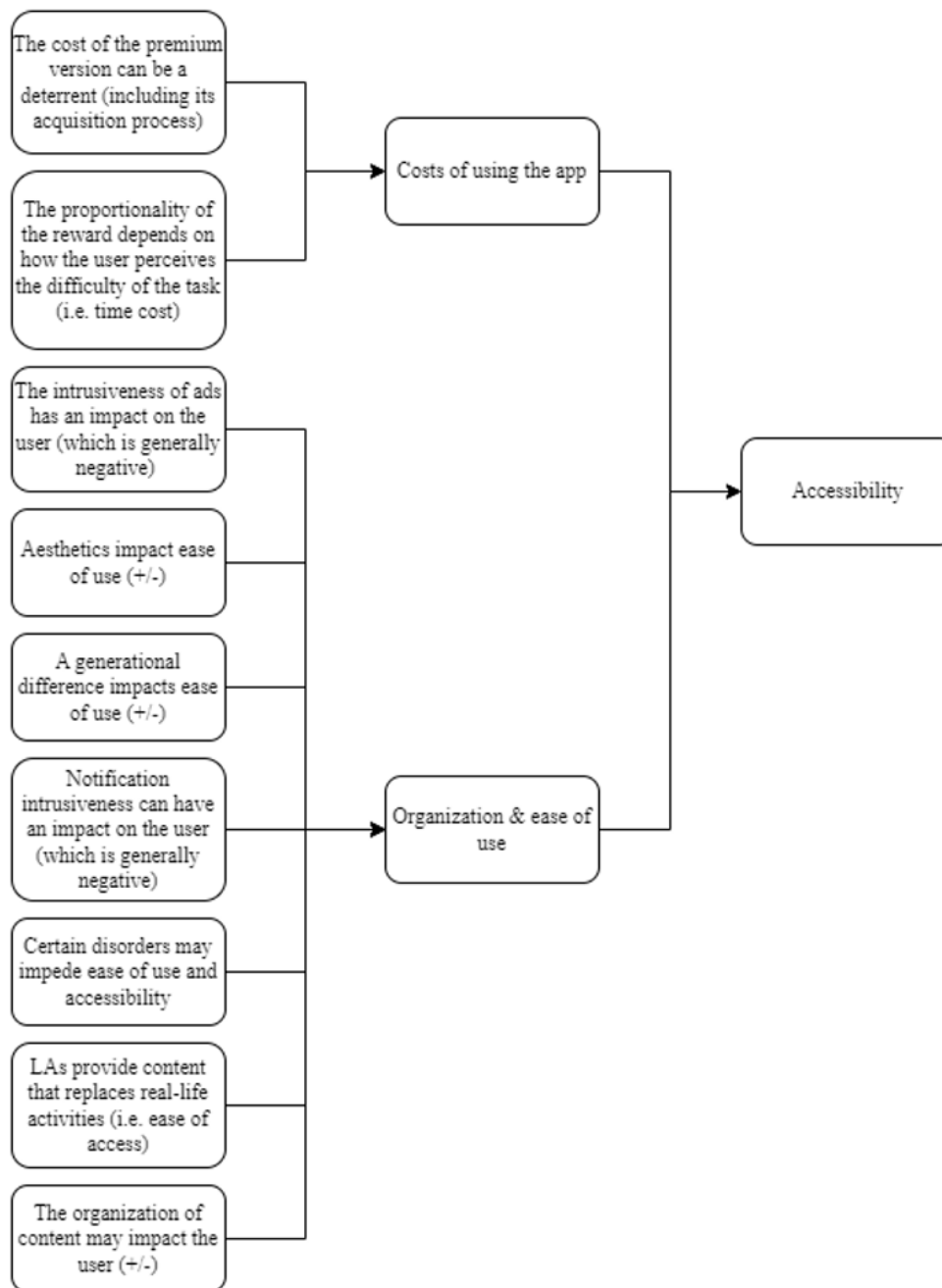


Figure 12. The *Accessibility* Aggregate Dimension.

This dimension focuses on the idea of accessibility, which includes both personalization and ease of use. Many participants noted the importance of these notions, with some focusing on the overwhelming nature of lifestyle apps.

“It could happen that I’m being overwhelmed earlier so that there is too much to do that I forget the reason I get the app,” Interviewee 10 said for question 12b.

Overall, there are many themes that surface within the context of lifestyle apps and the impact gamification can have. Since tables are great tools to enhance trustworthiness in qualitative research, as they provide a clear view of the data collection and analysis processes (Cloutier & Ravasi, 2020), visualizing the codes and data can provide clarification regarding the concepts within this paper and their importance to the interviewees. Please note that the abbreviation *SOT* below means *second-order theme*.

	The variety of an app's content keeps users engaged (SOT #1)	The adequate value of an app's content provides satisfaction (SOT #2)	Personal factors decide whether the user uses the app in the moment (SOT #3)	The image the app portrays can impact app usage (SOT #4)	There are costs to using the app (SOT #5)	The organization & ease of use impacts usage (SOT #6)	The impact the app has can affect usage (SOT #7)	Respectful and realistically achievable content (SOT #8)	Total quotes extracted
Interviewee 1	8	7	5	1	2	7	3	2	35
Interviewee 2	4	5	4	4	0	9	4	2	32
Interviewee 3	1	9	3	2	0	4	3	1	23
Interviewee 4	0	9	8	3	1	2	1	1	25
Interviewee 5	0	3	6	1	1	0	1	0	12
Interviewee 6	2	7	6	2	0	2	4	1	24
Interviewee 7	4	6	3	2	1	3	2	1	22
Interviewee 8	1	4	3	2	1	7	2	1	21
Interviewee 9	1	5	5	3	3	4	1	5	27
Interviewee 10	3	2	4	1	1	7	1	1	20
Total quotes extracted	24	57	47	21	10	45	22	15	241

Table 2. Statistical Data – Number of codes per theme, per interview, and in total.

	Personal motivation (includes SOT 3)	App perception based on content (includes SOTs 1 & 2)	App perception based on identity (includes SOTs 4 & 7)	Accessibility (includes SOTs 5&6)	Ethical practices (includes SOT 8)	Total quotes extracted
Interviewee 1	5	15	4	9	2	35
Interviewee 2	4	9	8	9	2	32
Interviewee 3	3	10	5	4	1	23
Interviewee 4	8	9	4	3	1	25
Interviewee 5	6	3	2	1	0	12
Interviewee 6	6	9	6	2	1	24
Interviewee 7	3	10	4	4	1	22
Interviewee 8	3	5	4	8	1	21
Interviewee 9	5	6	4	7	5	27
Interviewee 10	4	5	2	8	1	20
Total quotes extracted	47	81	43	55	15	241

Table 3. Statistical Data – Number of codes per aggregate dimension, per interview, and in total.

Thus, the more a second-order theme appears within the interviews, the more important it can be deemed. For instance, while both the *Personal motivation* and *Ethical practices* aggregate dimensions only contain one second-order theme, the former's prevalence outweighs the latter's, thus meaning that the interviewees placed greater importance on personal factors than ethical concerns.

4.2. Interviewing Findings

This section includes a narrative, data-based description of the findings. By using the elements of the data structure, and especially the links between second-order themes and aggregate dimensions, the results of the research are explained.

Moreover, frequent interviewee quotations are also highly important, as they give the participants a voice within the findings, and within the final paper (Gioia et al., 2012). Anderson (2010) postulates that there is a tendency for authors to overuse quotes without extracting relevant information. Thus, researchers need to emphasize key concepts and their interrelationships (Magnani & Gioia, 2023), meaning that, within the context of this paper, interviewee answers are analyzed and compared to one another to extract relevant information that can be discussed in depth.

The table below showcases the main lifestyle apps each interviewee currently uses or has used in the past. Here, a significant focus on physical health apps and activity tracking can be noted. Additionally, a more detailed overview of the interviews is available in *Appendix F*, which also links some of the most common themes encountered per interview.

	<i>Lifestyle app(s) used</i>	<i>Purpose of the lifestyle app(s)</i>
Interviewee 1	Waking Up	Meditation
Interviewee 2	Headspace	Meditation
Interviewee 3	30 Days Body	Physical health
Interviewee 4	Food, My Fitness Pal	Food tracking, physical health
Interviewee 5	Huawei Health	Physical health
Interviewee 6	Apple Health	Physical health
Interviewee 7	Samsung Health	Physical health
Interviewee 8	Fitbit, Sweatcoin	Physical health
Interviewee 9	WaterReminder, Mijn Leefstijlcoach (Albert Heijn)	General health, lifestyle
Interviewee 10	Rabit, Tody	Organization & habit tracking

Table 4. Lifestyle Apps each interviewee discussed.

4.2.1. General remarks

In terms of awareness, from the start of the interviewing process, it seemed that many people were unaware of their usage of lifestyle apps. In fact, some potential participants were wondering if certain apps fell into the category of *lifestyle apps*, thus reinforcing the idea that the availability and sheer number of lifestyle apps may overwhelm user choice. Moreover, two of the participants also mentioned that there were no game-like elements within their chosen apps. However, upon further inspection, the apps did contain game-like elements, such as performance graphs and points, which the interviewees did not consider. Thus, two ideas can be extracted from this occurrence:

- While each interviewee was given a brief description of the concept of gamification, it is possible that they were unaware of all aspects that fall under the umbrella term.
- Gamification is so engrained in our minds, and is becoming more and more popular within regular apps, that users are unaware of its implementation.

Both of these can be true, as one of these interviewees mentioned not being accustomed to the use of game-like elements within non-game environments. Thus, it is more likely that this interviewee was not aware of what the term *gamification* fully encompasses. Conversely, the other interviewee mentioned being accustomed to the use of game-like elements, thus possibly indicating the commonality of gamification in day-to-day life.

In terms of privacy, seven of the participants seemed indifferent to the subject within the context of lifestyle apps, with some indicating certain specific occurrences, such as data breaches or social aspects,

which may lead them to becoming more aware of such events. Moreover, Interviewee 2 mentioned growing more cautious in recent years, while Interviewees 7 and 8 fully considered privacy within their app usage, notably regarding GPS tracking and a general sense of transparency from companies, respectively. However, both Interviewees 7 and 8 ranked lower in terms of general phone usage, meaning that their more private nature may impact this belief.

Thus, while predatory data handling may occur, awareness of data privacy does not seem to be the issue in this case. For instance, Interviewee 9 noted that she was fully aware about the possibility of data mishandling. Thus, perhaps this could be attributed to the age range of the demographic chosen for the interviews. As mentioned by Jang et al. (2018), recent generations are much more accustomed to technology, and are often heavy users of both game technology and mobile phones. Therefore, it might be that younger people are more prone to sharing details online regarding their private lives.

In terms of marketing, many interviewees mentioned that advertisement targeting was often lacking. However, when asked about the way they perceive companies that create lifestyle apps, many of the respondents believed that they were quite profitable. While this can be the case for larger companies, many lifestyle apps still struggle with profitability, especially during their early stages.

“Well, since there are more and more of these apps, I'm I'm guessing that they're making money,”
said Interviewee 10 when answering question 5a.

However, the sheer abundance of apps does not mean that all are well-designed. Thus, when it comes to feedback, many lifestyle apps ask for ideas that could improve their platform, but only Interviewee 5 mentioned ever replying to any feedback requests, although this concerned an unrelated medical health app.

“I wouldn't take the time to review an app if I don't get anything out of it, because I feel like I cannot make such an impact, just my opinion alone,” said Interviewee 9 when answering question 13.

In terms of the value that the app provides, eight out of ten participants noted that the core of the app should be more important than the use of game-like elements. Many consider the need for the basic value of the app to fulfill its purpose, and while some interviewees believed that offering a percentage may be difficult and might depend on the app, the consensus seemed to fall around 70% in terms of the core and 30% in terms of the use of game-like elements.

“What matters at the end of the day is to have like the best product possible, and the best product possible mainly consists of like the core of the product itself. So, why do you want to use the app in the first place? You can add gamification on top of that, but if your base is not really good, your base product is not very valuable,” said Interviewee 1 when answering question 9b.

However, the other two interviewees did not necessarily postulate the opposite. Instead, they believe in a balanced app, that offers the basic core packaged with game-like elements in order to add substance to the value offered by the app.

“Uh, obviously the core has to be interesting, but I think due to the gaming elements or gamification, it could make people be interested. I think they should be equal because whenever you have— If the core of an app is great, but it's very boring or it's not engaging at all, people won't engage,” said Interviewee 9 when answering question 9b.

Thus, no interviewee favored the use of game-like elements. However, their importance should not be undermined, as many users noted being more engaged with the app thanks to the interaction they offered. Moreover, none of the participants would mind additional game-like elements, as long as they fit within the context of the app.

“I don't think that it would be counterproductive. I mean, it depends on the implementation, but no, like, as a, as a concept I don't—I don't feel like it would be a bad thing,” said Interviewee 7 when answering question 14a.

Overall, game-like elements are welcomed in lifestyle apps. However, developers should still strive to find a balance between the core of the app and the use of gamification.

These general remarks were found among ideas that were reflected by all interviewees. However, a number of unique concepts that only a few participants mentioned also emerged throughout the interviews.

4.2.2. Unique Remarks

This section helps reflect ideas that were not part of the general consensus or mentioned by all participants, but that still offer interesting insight into various aspects that influence user beliefs. Thus, there are unique ideas worth looking at, as they provide additional insight that may have distinctive value.

In terms of the social aspects of gamification, since 9 out of 10 participants cited being used to game-like elements within non-game environments, social elements within gamified lifestyle apps can have an impact on the user. Thus, all participants cited positive effects. However, while the questions regarding limitations were based on Leclercq et al. (2020) and phrased as possible adverse reactions of gamification, the only major effects found relate to the idea of discouraging poor-performing players, or those who may not be used to game-like elements.

“Especially in my gaming stuff, I'm usually better than my friends, so they also always are a bit—Well, there's good competition, but I feel like they are sometimes not that happy,” said Interviewee 4 regarding question 11.

Thus, being used to video games in general could impact the overall experience of gamified lifestyle apps. For instance, if ranking mechanics such as leaderboards are present within the app, individuals who are more accustomed to game-like elements—in part thanks to past gaming experiences—may provide a challenge for other individuals that is too difficult when compared to the rewards they get from their accomplishments.

Moreover, Interviewee 5's unique reflection on the social aspects of gamification (Code #35 – see *Appendix D*) within lifestyle apps could also lead to peer pressure. If the individual feels like they need to join the app to not lag behind the rest of their social circle, they might not extract the full potential the app has to offer.

In terms of advertising, many interviewees seem to be aware of the marketing landscape that surrounds them. However, some of them are also aware of the extent to which marketing shapes our world. As mentioned previously, Interviewee 9 understands the possibility of promotional activities impacting her outlook. However, other interviewees, such as Interviewees 3 and 7, mentioned being much more resistant to marketing tactics.

Moreover, word of mouth seems to be a common method that allows people to start using apps, as friends and family recommending a certain app can heavily influence another user's decision. For instance, Interviewee 8's usage of Sweatcoin started with a recommendation from one of his friends. Other participants, such as Interviewee 7, would also be more incentivized to download an app if his friends recommended it. However, Interviewee 3 believes the opposite.

“Lifestyle apps are something that I use like very spottily. [...] So I wouldn't say that somebody saying, ‘Yeah, this app is a game changer,’ would make me instantly download it,” said Interviewee 3 for question 5a_{ii}.

This interviewee also mentioned the importance of culture in the art of advertising, and how the culture he grew up in birthed his repulsion for marketing. Thus, while Interviewee 6 wishes to find the

unique selling factor within lifestyle apps that sets them apart from the rest (see *Appendix F, Interview 6*), Interviewee 3 does not find any uniqueness in the abundance of marketing material displayed in day-to-day life.

In terms of technological advances, both Interviewees 5 and 8 mentioned the use of smartwatches paired with a lifestyle app. This intriguing concept has been implemented quite commonly within the past few years, and could further prove to be an incentive for motivating users to improve their lifestyle.

Additionally, Interviewee 8 also used an app called Sweatcoin, which provides currency for walked steps that can be converted into real-life gifts. While the participant mentioned that the app respects privacy measures, he questioned its credibility due to the nature of the rewards, and stopped using it when he realized no tangible benefits could be acquired (see *Appendix F, Interview 8*).

However, benefits do not always have to be an outcome. Accessibility can be understood as the customization or personalization of the app, but also as the addition of extra features that improve ease of use. This notion often appeared throughout some interviews, and the sample tends to agree that personalization can provide many benefits in the long run, as it offers a more streamlined experience, and users are able to curate content.

“Oh, yeah, I think that’s that’s a positive thing. That’s something that’s lacking a lot in the Samsung app, is like— I don’t, I don’t wanna see like yoga training videos when I when I boot up the app,” said Interviewee 7 when answering question 9ai.

“Whereas if [there is no personalization], you could just be given like a random practice that you aren’t really, you know, really feeling connected to it that much. But yeah, I think it’s one of the better ways to gamify an app,” said Interviewee 1 for question 9ai.

Interviewees 4, 9, and 10, while not against personalization, do not factor in this notion when using lifestyle apps. Interestingly, Interviewee 9 is one of the two participants who mentioned preferring a balance between the core of the app and the usage of game-like elements, but her indifference toward personalization raises a few questions. Upon further discussion, Interviewee 9 mentioned that she prefers game-like elements that are not driven by personalization, such as challenges, rewards, and achievements, as they provide a sense of diverse and engaging user experience.

Nevertheless, personalizing an app can also be important from the point of view of people who may require additional adjustments to improve ease of use. This extends to basic features, such as text size changes for people who struggle with their eyesight, or different color palettes for colorblind people, as mentioned during the literature review.

However, some interviewees also noted the possibility for disorders or addictions to impact the accessibility and usability of the app. For instance, Interviewee 5 mentioned the idea of being satisfied when the step counter went up on her health app. However, other interviewees noted the possibility of developing bad habits through the overuse of lifestyle apps while trying to seek constant gratification. Although related to marketing, Interviewee 9 mentioned the addictiveness of the Albert Heijn lifestyle app, in which the user is able to save for promotions after spending a certain amount of money in order to get a reward that is often not proportional to the amount of effort put in.

“I still need to spend €50 in order to receive a product which is only like maybe €1. Yeah, it feels like some sort of race and it’s— I know it’s very psychological and very stupid, but yeah, I do fall for that. [...] I just think it’s a very good marketing tool, and I hardly know people that don’t fall for this,” said Interviewee 9 when answering question 10a.

Thus, a fear of missing out is created within the environment, which encourages the user to engage and spend money. While this tactic seems to be effective in the case of the participant, the potential for addictive behavior should be taken into account.

However, in terms of disorders, it is hard to judge which ones may affect usability and to what extent they may do so. Since the only disorder that was mentioned in detail during the interviews is ADHD (attention-deficit/hyperactivity disorder), the paper will solely focus on this particular example. Overall,

Interviewee 10 noted the overwhelming nature of gamified lifestyle apps, despite being used to game-like elements within non-game environments. However, people who are not used to game-like elements in non-game environments may also find gamification in lifestyle apps confusing or overwhelming. Certain participants mentioned a generational gap, where younger people are more used to technological advances than older people. While there can be exceptions to this phenomenon, a generational gap does exist within society, as mentioned by Jang et al. (2018). Thus, younger people grow accustomed to newer technologies faster, meaning that the use of game-like elements may restrict an app to a certain age range.

In conclusion, there are many elements that can impact the various aspects of gamification. However, narrowing down which aspects can help answer the research question refines the results of the paper to a set of easily understandable concepts. These can then be used to form recommendations that positively impact the business value of companies that create lifestyle apps.

4.3. Emerging Model

At the end of the analysis, a model that contains the aggregate dimensions emerges, showcasing the relationships and the impact they have. Moreover, this model can help create recommendations that directly answer the research question.

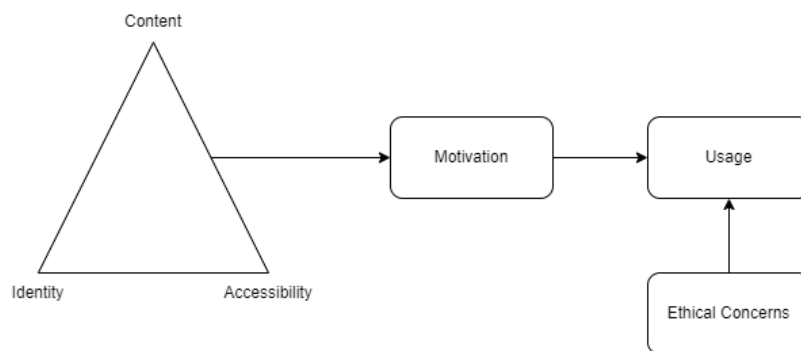


Figure 13. User Acceptance Model: An Emerging Model Based on Data Analysis.

Thanks to the inductive nature of the analysis, the emerging model uniquely takes the shape of a user acceptance model, which portrays the *App Perception based on Content*, *App Perception based on Identity*, and *App Perception based on Accessibility* dimensions as being three sides of a triangle. However, these are not mutually exclusive, but instead require a balance for the chosen lifestyle app, which may depend on its nature. Thus, different amounts of these three dimensions may impact the motivation of the user. However, while usage is not a dimension within the analysis, all five aggregate dimensions lead toward higher app engagement when perfectly combined. Therefore, a motivated user naturally has higher app usage, which in turn, if the app is monetized appropriately, leads to higher financial revenue.

Ultimately, the idea of ethical concerns only affects the notion of app usage. As seen during the interviews, while many interviewees were not concerned about general data privacy measures, some did note the idea of unethical or predatory practices within lifestyle apps or game-like elements. Thus, if these are too intrusive or if they take too much away from the experience, users may feel forced to reconsider their app usage.

In conclusion, there are three core ideas that impact motivation, which all lead to higher app usage. However, ethical concerns may directly impact engagement if the user discovers predatory mechanics that put their enjoyment in jeopardy. Overall, at least one recommendation per aggregate dimension can be extracted, but their role, significance, and impact may differ depending on the company they are applied to. Nevertheless, each one must ultimately provide ideas to improve the business value of companies that create lifestyle apps.

5. Discussion

This section discusses the findings and provides recommendations based on those findings. Thus, the goals, potential and limitations of each recommendation must be showcased, all while considering the business value each one provides.

5.1. Discussion Based on Analysis

When it comes to content, lifestyle apps that offer a variety of divertissement can often benefit and target various segments of the market. However, as mentioned previously through Interviewee 7, an abundance of content can also deter certain users from continuously using the app.

Gamification literature and practice used to focus on points and awards, often neglecting other game design elements (Hofacker et al., 2016). If personalization allows users to tailor the app to their own preferences, perhaps gamification elements should also be included within the aspects that the user may choose. Thus, rather than concentrating on the small intricacies of content and design, a possible recommendation could redirect attention toward the nature of the content the user experiences. Moreover, considering the variation in users' levels of experience regarding gamification, this idea includes the curation of game-like content and features as well.

When it comes to identity, branding sophistication often depends on the financial health of the company, with larger conglomerates being able to fund larger branding awareness campaigns (Davis, 2010). However, building a sense of community goes beyond the idea of branding. As mentioned previously, some interviewees were unaware of their usage of lifestyle apps or the inclusion of game-like elements within them. Thus, a possible recommendation for building a sense of community is to bring awareness to the commonality of lifestyle apps, emphasizing their ease-of-use and ease-of-access nature, rather than solely focusing on the content provided.

In terms of accessibility, many options have already been implemented in lifestyle apps, as mentioned by Zaina et al. (2022). However, personalization does not only include the ability to customize and tailor the app to the user's liking, but also features options that improve the quality of life for all individuals, regardless of disability or disorder. For instance, one of the participants was open to talking about her ADHD, and remarked the potential overwhelming nature of lifestyle apps with gamified content. This could be an instance where content curation could help solve such issues. However, the implementation of gamification elements must be thoughtful, thus striving for a balance between engagement and the potentially negative impacts on mental health or addictive behaviors.

Regarding motivation, past research seems to focus on the quality and significance of the rewards, but does not provide a direct link to how they affect user habits. Many participants noted using their lifestyle apps regularly for short periods of time, before motivation waned or personal factors intervened. Thus, it may be more beneficial to encourage shorter usage over a long period of time, rather than short, constant bursts of motivation that quickly wane in intensity, leading to the user abandoning the app. This idea could be achieved through the use of encouraging notifications, rather than pestering reminders and promotional material that interrupt the user experience.

In terms of ethical concerns, while these do not directly impact motivation, they can impact usage if worries grow large enough for the user. Some participants noted the utilization of pushy monetary and advertising tactics that seemed to interrupt the flow experience.

“So, if the notification is about the app usage, [...] I'm fine with it. If they start notifying me about like, this promotion's on my phone, I'm like no. Then if it happens too much, I will even stop using the app,” said Interviewee 10 regarding the abrupt nature of notifications and pop-ups.

This idea also links well with the first-order concepts presented in the second-order theme *The impact the app has can affect app usage*, since advertisements are rarely well-integrated into the core experience of apps, as was noted during the literature review. Thus, while traditional marketing may

bring more awareness, advertising as a monetization scheme often breaks the flow of gameplay described in *Schell's Elemental Tetrad Model*.

Therefore, a possible recommendation could involve the seamless integration of advertising material, leading to the user perceiving it as part of the experience rather than a pause in the narrative. This element is common in video games such as *EAFAC*, where advertising boards included within the game mirror real-life football fields. However, the inclusion of seamless advertising within lifestyle apps could also take the shape of features sponsored by different companies, thus offering a sense of cooperation rather than competition.

5.2. Recommendations

5.2.1. Curated content

In a world where information is readily available, and a plethora of various mobile applications offer similar value, differentiating any product can become a challenge. However, in an effort to appeal to a wider demographic and attract as many consumers as possible, apps may provide too much content, thus leaving some users overwhelmed by the sheer number of possibilities.

As seen through the interviews, some users are likely to perceive content they do not wish to see as highly negative, which may even impact their decision to continue using the app. Therefore, the proposed solution is to offer personalization choices in terms of both the content seen and the features used.

This idea is based on codes #4, #5, #13, and #15 (please see *Appendix D* when codes are mentioned within Section 5.2.), and allows users to filter out parts of the app they have little interest in, thus allowing for a streamlined experience. However, this may also benefit individuals who are less used to seeing that specific type of content. Moreover, in terms of the use of game-like elements, while many younger people seem to be accustomed to this notion, elderly people or individuals from parts of the world where gamification is not as engrained into day-to-day life, may perceive it as a drawback rather than a bonus. Thus, allowing full customizability over the game-like elements and content present provides the opportunity for users to feel as if they are building their own personal app, rather than having the same version as everybody else. This could take shape in the form of an optional tutorial that briefly teaches the user the basic functionalities of the *building-block* mechanics while still allowing room for natural progression and the discovery of more in-depth elements.

In terms of business value, this idea should improve user retention, which may drive increased usage of the app, thus translating into additional revenue if the app is appropriately monetized. However, implementation may require additional research, to ensure that such a proposal is beneficial for the specified company and lifestyle app. This could be achieved through the creation of two versions of the same app: one containing the base of the gamified app, and one allowing for full customization of content and game-like elements. By distributing, testing, and tracking the performance of both versions, the company would thus know if increased personalization features positively affect engagement within the context of their own app.

5.2.2. Awareness marketing campaign

While monetization methods for lifestyle apps can often differ, they have little effect if the app itself is not appropriately marketed to the public. As mentioned throughout the *Findings* section, many participants were not aware that they were using lifestyle apps, and some were also not entirely sure if they did in fact include game-like elements. Moreover, lifestyle apps often lack appropriate marketing campaigns, and throughout the interviews, a number of participants noted that word-of-mouth encouraged them to start using lifestyle apps. Thus, in terms of the branding levels postulated by Davis (2010)—please see *Section 2.2.3.*—it seems that most lifestyle apps would rank in the *little-to-no branding* and *basic identity* categories, with very few achieving *brand awareness*.

Thus, a hypothetical marketing campaign that links the company's lifestyle app to the idea of user unawareness may increase word-of-mouth advertising. This idea is based on codes #9, #10, #29, and #37, and could take shape as a short advert, or a catchy slogan that encourages people to rethink their app usage, and realize the distinct nature of lifestyle apps among all other apps. A possible example could include, "Are you keeping track of your lifestyle?" or, "Did you log in your stats for the day?" Here, the first slogan emphasizes the recurring usage of lifestyle apps in day-to-day life, while the second slogan adds a gamified element to the question, as is the nature of many lifestyle apps today.

However, some interviewees noted that emphasizing the idea of gamification in lifestyle apps through marketing would not make them reconsider their app usage:

"I can always be surprised of the effects of marketing, but [...] based on my experience, it would be hard for me to get influence in a decisive manner by those game like elements used in marketing," said Interviewee 8 when answering question 9c.

"Saying that something has a game-like element wouldn't like intrinsically draw me in," said Interviewee 7 when answering question 9c.

Thus, additional elements may be required to properly encourage users to take part in the campaign. Many interviewees noted that the idea of social interaction, while not the focus of a lifestyle app, is often encouraging, as it provides a sense of healthy competition for users and their friends. Therefore, additionally emphasizing the social aspect of lifestyle apps through marketing by focusing on the bonds strengthened when taking part in this experience (i.e., including both friendship and family bonds) may add to the core value of the product sold.

In terms of business value, marketing campaigns are usually costly, and depending on the size of the company, their reach may widely vary. Thus, this idea is easier to implement for larger enterprises. However, even one significant company promoting this notion and educating the public by increasing their awareness of lifestyle apps can have a market-wide impact that would benefit all companies that create lifestyle apps.

5.2.3. Accessible design: the case for ADHD

Bringing awareness to a product is a great method for encouraging potential users to start interacting with an app. However, the design needs to be accessible for users to keep engagement levels high. The notion of accessible content and the personalization of game-like elements has already been discussed; however, it is also important to relate this idea to real-life cases that impact millions of people worldwide.

As mentioned previously, one of the participants was open to talking about her ADHD. While this disorder may not be physically noticeable, it can drastically impact attention and behaviors, which is highly important in the context of retaining lifestyle app users. According to the National Institute of Mental Health (n.d.), the estimated lifetime prevalence of ADHD in US adults aged 18 to 44 is 8.1%. This equates to 8.7 million adults in the US, and worldwide, the figure encompasses 140 million adults, or 2.6% of all adults (Wirth, 2023).

In the case of the interviewee who noted her ADHD, the lifestyle apps she mentioned were slightly different from those of the other interviewees. In fact, as noted in Table 4, in Section 4.3., most interviewees focused on meditation and especially on physical health when using lifestyle apps. However, Interviewee 10 requires lifestyle apps to keep track of her routine and habits, and they serve as reminders to do certain tasks at certain times. Thus, her lifestyle apps encourage the improvement of mental health, much like meditation apps do, but Rabbit and Tody focus on much more basic day-to-day accomplishments rather than relaxation.

When building such organizational apps, common disorders like ADHD must be kept in mind. As Interviewee 10 previously stated, she still feels overwhelmed by this kind of app, despite habit tracking being a common way to keep her ADHD under control. Thus, the idea postulated in Section 5.1. may

not suffice, as offering a plethora of options for users to curate their own content may entail too many choices for some people, ultimately leading to the user taking none and possibly uninstalling the app altogether.

Thus, a solution might be to advertise an app as ideal for people with certain disorders. However, the app must then reflect the necessary changes to ensure that the user does not feel any of the effects of their disorder. For instance, if the app decides to promote itself as ADHD-friendly, offering the choice of content curation may overwhelm users. However, splitting the app and creating a different version for various disorders would be highly costly and unfeasible. Thus, an idea could be to offer multiple accessibility presets for various common disorders. This takes into account codes #5, #20, and #28, and much like options that increase text size and swap color palettes, the user would be able to turn on all features that may wane their attention at the click of a button.

In terms of business value, this would be beneficial in attracting more users who suffer from said disorders to the app. However, leading research into which features take away from the overall experience and which add to it for certain disorders may prove costly and time-consuming.

5.2.4. A paced experience

The overwhelmingness of lifestyle apps may also affect the general populace, not just people with certain disorders. As mentioned by Interviewee 4, sometimes the nature of the content can simply become too much to handle. While intrinsic motivation is difficult to encourage through the form of an app, as, for instance, personal reasons may intervene unexpectedly, extrinsic motivation can provide a boost of energy and increased app usage. The notions of rewards and game-like elements for providing satisfaction were discussed in depth during the literature review; however, it seems that more may not always be better.

Thus, a potential idea would be to offer the user a moment of respite during the use of their app, especially if they have been using said app continuously for too long. Therefore, instead of providing constant reminders about app usage, which results in minimal interaction, the app should encourage the user that they are doing a great job no matter the time that they spend on the app. This idea is based on codes #5 and #12, as it seems that most people use an app in order to improve their lifestyle, meaning that a reminder that reassures users about their progress, rather than their app usage, may drive intrinsic motivation.

This notion could be strengthened with additional psychological studies, thus paving the way for future research. However, positive reinforcement and offering breaks to the user serves as a potential way to achieve long-term engagement that occurs in smaller installments.

Much like previous recommendations, increased motivation drives user engagement, thus improving overall business value if the app is appropriately monetized. However, monetization schemes are highly difficult to organize without offering additional drawbacks that interrupt the narrative and take away from the user's overall experience.

5.2.5. Seamless advertising

Thus, there is need for much more seamless advertising within media, and specifically within lifestyle apps, whose value can easily be negated by intrusive advertisements. For instance, many free lifestyle apps often interrupt the user experience after logging in a certain feat or achievement, as they now have to wait five to thirty seconds before they can close the advert. This feature abruptly disrupts the gameplay and may confuse users, as it often pops out from the rest of the app due to its animated graphics or different color palettes.

Thus, there are two solutions for integrating ads more seamlessly within the app. First, the content should reflect the nature of the app, meaning video advertisements are likely to interrupt the experience no matter their context. However, if the advertisement can blend in with the rest of the app, rather than having a reserved ad space at the bottom or top of the screen, it may be considered part of the experience. For instance, if the default color palette of the app is gray or black and white, converting advertisements

to the same hues may acquire the desired effect. However, the degree to which this is effective depends on how well the advertisement blends into the background. If the advert is only slightly camouflaged, it may still interrupt the narrative flow of the experience. Conversely, if the advert is too concealed, the advertiser may not wish to promote their material on said lifestyle app, as the user may not perceive the advert. Nevertheless, there is still need for additional research within this domain, primarily regarding the psychological aspect, in order to determine the extent to which this idea impacts users and the right fit for specific companies.

Therefore, the first solution tries to blend in advertisements into the experience, much like the aforementioned *EAF*C video game. However, another way to achieve this notion could be to integrate promotional campaigns into the core of the app. Within the context of lifestyle apps, this takes the shape of certain features being promoted or advertised by a certain company, much like how certain events are promoted or advertised by companies traditionally. This idea can work both ways, as smaller brands can promote themselves in well-known lifestyle apps, but larger brands may also want to bring light to smaller lifestyle apps to help them grow. Within the case of a lifestyle app similar to *Mijn Leefstijlcoach* mentioned by Interviewee 9, certain brands sponsoring the app, and in return, the app promoting their products at the top of the page, may offer much more seamless advertising integration. This can take shape under the form of certain features of the app, including game-like features, which are brought to users by the advertiser. Thus, both solutions are based on codes #6 and #19, and when paired with optional subscription models that are targeted toward a wider audience, they may provide additional financial resources to increase the business value of the company.

5.3. *Scientific Contributions*

There are a number of benefits that this paper brings to the scientific community. Firstly, the age range chosen means that the paper focuses on a specific demographic—one which is more likely to interact positively with game-like elements. Therefore, focusing on one particular demographic rather than comparing various age ranges allows for a specific, targeted focus in terms of the findings of the paper. Moreover, participants of various cultures and backgrounds shared widely different beliefs, but also general remarks that helped shape this paper. Thus, the demographic offers a unique perspective into the domain.

Additionally, this paper aims to target the three main categories of the literature review. As mentioned by Hofacker et al. (2016), gamification literature and practice used to focus on points and awards, often neglecting other game design elements. This idea can also be found throughout the literature review, as much of the existing literature focuses on specific game-like elements, rather than providing solutions and implementation tactics. While improvements have been made in past years, this paper aims to add to this growth by looking at general recommendations that are realistically feasible, rather than focusing on small game-like elements and their effects. For instance, while the recommendation in Section 5.2.1. mentions the use of individual game-like elements, these are not the focus of the idea. Instead, the user is able to utilize building blocks to craft their own app, thus creating a personalized version that is uniquely tailored to their desires. Therefore, the focus is on the experience rather than the elements, which should be selected depending on the purpose and value of the respective lifestyle app.

In terms of accessibility, the paper goes beyond the ideas stated by Zaina et al. (2022) by offering an in-depth look at the possibility of better integrating game-like features for individuals with certain disorders. Additionally, as was stated by Peng et al. (2016), many users are not aware of their usage of lifestyle apps, which was also noticed during this research. Thus, this research aims to bring awareness to the notion of lifestyle apps and the use of game-like elements within them.

Moreover, the use of an inductive methodology within this paper also adds a unique dimension within the findings. Acceptance models are generally used as starting points in deductive research; however, acquiring this new emergent model allows for a unique exploration of the domain's themes from other perspectives in future research.

Overall, the paper provides a unique look into the three aspects described in the literature review. However, the extent to which gamification impacts them, and to which it may help improve business value, highly relies on the successful implementation of improvements and recommendations. Nevertheless, this research provides a basis on which future papers can be built upon. While the business-related aspects have been well-established through this paper, a few unique ideas that the participants remarked during the interviews could benefit from additional research, especially those that would require a psychological perspective.

5.4. Limitations & Future Research

Altogether, the content and the value of the app, including the usage of game-like elements, need to be well optimized, as shown in recommendations 5.2.1. through 5.2.4. However, these recommendations alone cannot thrive on their own. As the younger generation seems to become more and more adverse to marketing, companies need to seek new tactics for both profit and retaining attention. However, many of these ideas are theoretical, meaning that they would need to be carried out in practice to observe their effects. Moreover, these effects and the implementation of the recommendations may differ depending on the app's purpose, functionality, or target demographic. As mentioned previously, each recommendation would benefit from additional research in its own way.

Furthermore, there are also general limitations that can be applied to the whole study. Firstly, the open-ended nature of the interviews can imply higher subjectivity from the sample. Thus, the data collection provides many personal answers, which the researcher must interpret through an objective lens. Therefore, interpretation bias and researcher subjectivity can affect the findings and interviewing results. In Wolfswinkel et al. (2013), an example is given in which multiple readers review the same papers. This would also be useful within the domain of coding the interviews; however, since the study was conducted by only one researcher, it was not possible to compare findings and results. Therefore, being highly aware of potential biases and approaching the subject from an objective lens is highly important to wane the impact of any adverse effects.

Moreover, interviewee biases such as the social desirability bias may also impact the results. Despite the anonymity provided, it is still possible for interviewees to refrain from fully speaking their minds, as they are aware that some of their answers may potentially be included within the final paper. Thus, validity checks ensured that interviewees were aware of their answers, as transcripts were offered to each participant, and feedback was appreciated. However, transparency is vital within research, and while the participants vetted their transcripts, a modest amount of feedback was offered, which may reflect the possibility of social desirability bias.

Furthermore, this study looks at gamification and lifestyle apps from a business perspective. Thus, the acceptance model, and notably the areas of this paper that tackle the subject of motivation, would further benefit from additional psychological research. Yan et al. (2021) states that “few studies to date focus on the psychological and social factors that explain users’ decision to continue using mobile health apps.” Additionally, Interviewee 3’s remark regarding the cultural aspects of marketing could tie-in well with the notion of lifestyle apps. Cross-cultural differences can often impact individuals, and using a tool such as the Hofstede model, and applying it to global branding and advertising strategy, can help companies target users more accurately (De Mooij & Hofstede, 2010). This idea could be explored in further detail by a paper that combines the business aspects of lifestyle apps mentioned within this research with the psychological depth of motivation required from other users.

Moreover, a comparative study may also benefit the field. Since this research goes in depth into the 18–29-year-old category, further analyzing an older demographic may reveal interesting information. Many interviewees stated the fact that they believe the older generation may have more trouble getting accustomed to gamification within lifestyle apps, and that younger people may feel the opposite. However, this study would need to specifically focus on a pre-determined age range, rather than directly comparing various age ranges within the same study, as this would allow for the required depth to be achieved. Furthermore, interviewing individuals of vastly different ages may provide a variety of

answers which may be difficult to analyze thoroughly within the scope of one sole paper, as the depth of given answers may drastically vary and impact the quality of the results.

Overall, while limitations were noticed within the research, the domain, and the recommendations, there is room for improvement. Additional studies from different perspectives could help alleviate these limitations, and companies may be able to further investigate the potential of each recommendation within the context of their business.

6. Conclusion

As lifestyle apps struggle to create business value and often lack financial profitability, companies must search for ways of improving their overall standing within their market. Gamification is one such possibility, although the extent of its impact on lifestyle apps' business value may differ depending on the area it is applied to. The recommendations suggested within this paper provide possible solutions, and can be understood from the perspective of the literature review's three categories.

The literature regarding the impact of gamification on extrinsic motivation is quite extensive, and the interviewees in this study considered the impact to be positive. However, making gamification tackle intrinsic motivation can prove to be more of a challenge. Thus, gamification seemingly has little room for improvement in this regard, as people often use lifestyle apps for their own benefit, and not simply for the sake of using the app. However, the recommendation *A paced experience* offers encouragement rather than reminders through notifications, which should boost app engagement, in turn leading to higher revenue if the app is monetized appropriately. Thus, it seems that gamification can amplify motivation, but cannot be considered a substitute, and in this case, the provided recommendation does not feature any gamification elements.

According to the interviewees, marketing game-like elements specifically is not all too likely to change their minds regarding an app. Thus, the *Awareness Marketing Campaign* does not contain the use of any game-like elements, nor does it focus specifically on the idea of gamification, but rather on the concept of bringing awareness to the usage of lifestyle apps. Moreover, the *Seamless advertising* solution only includes gamification if the game-like elements within the app are sponsored by another company. Thus, there does not seem to be much potential for gamification to impact the marketing aspect of lifestyle apps. However, to improve business value and drive user engagement simultaneously, the app needs to strive for seamless advertising that also accounts for the user and their needs.

As mentioned previously, this paper's findings focused on the user experience, rather than the exact mechanics behind gamification that led up to that experience. Thus, the *Content Curation* and *Accessible Design* ideas can drive user engagement within the acceptance model through personalization. However, the overwhelming nature of lifestyle apps may require a tutorial or a list of presets that also include certain disorders more prone to feeling overwhelmed within this context, such as ADHD. Therefore, there is still high potential for design to be improved and to take further advantage of gamification. However, as stated by the majority of participants, the core of the app must first be established, as the basic functionality offers most of the value. Thus, many interviewees perceive gamification as an additional bonus that is welcome but not always necessary, depending on the needs the app fulfills. Nevertheless, it seems that gameful design, much like other recommendations, requires a balance between user experience and creating business value.

Overall, gamification can improve certain areas of lifestyle apps, but its effectiveness may be more limited in others. Gamification seems to have a great impact on extrinsic motivation, but is limited in terms of intrinsic motivation. For marketing, gamification is difficult to implement, and while specifically advertising the usage of game-like elements may not always be impactful, bringing awareness to the usage of lifestyle apps may make a difference. All things considered, it seems that working on the implementation of game-like elements within the design is where the most room for improvement lies.

Nevertheless, there is one factor that the app must strive for in order to make all possible improvements work. Thus, the extent to which gamification can improve lifestyle apps may not have a significant effect unless the app is appropriately monetized, all while offering a smooth user experience.

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9. Appendices

9.1. Appendix A – Literature Review Methodology, based on Wolfswinkel et al. (2013)

Establishing a methodology for the literature review is highly important to review literature effectively and rigorously (Wolfswinkel et al., 2013). The literature review process is based on the paper by Wolfswinkel et al. (2013), and demonstrates how the researcher should select, analyze, and write about the chosen papers for their study. This paper uses grounded theory for thoroughly reviewing literature, thus allowing researchers to approach each paper meticulously.

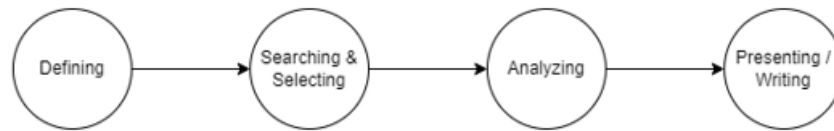


Figure 14. Literature Review Methodology Process, based on Wolfswinkel et al. (2013).

9.1.1 Defining

Defining is the first step that needs to be accomplished before the researcher begins searching for articles. Firstly, the scope of the review must clearly be explained, and inclusion and exclusion criteria for article selection need to be defined (Wolfswinkel et al., 2013). This paper deals with creating business value in the realm of health and wellbeing apps, and the literature review gathers data that already exists regarding the paper’s themes. Thus, this paper mainly deals with the fields of business, gamification, and user engagement, applied to the specific context of lifestyle apps.

Secondly, designing criteria for inclusion and exclusion determines the potential articles that are found during the searching process (Wolfswinkel et al., 2013). For this paper, trusted scholarly websites, such as Scopus or Web of Science, can provide relevant and useful material. Moreover, scholarly journals are also likely to provide relevant articles (Wolfswinkel et al., 2013).

Lastly, selecting keywords for the searching process must be established in order to find data and papers within selected research domains (Wolfswinkel et al., 2013). Additionally, specific keywords relating to specific dimensions of the literature review were also often used. For instance, in the *Design* sections of the literature review, this entails keywords such as *design elements in mobile apps*, *game design elements in mobile apps*, or *intuitive design in mobile apps*. Moreover, variations of such keywords, including synonyms, were also used, and this process was also followed for finding the rest of the sources within the paper.

Therefore, the table below shows how the most relevant studies within the literature review were found. It includes their titles, their journals, the obtainment method, the keywords entered, and the filters used.

Study	Title	Journal	Obtainment Method	Keywords	Filters
Bitrián et al., 2021	Enhancing user engagement: The role of gamification in mobile apps.	Journal of Business Research	Scopus Search	gamification, marketing	Publication Years: 2020 and above Results: 253 documents, 2nd on the list, 95 citations
Deterding et al., 2011	From game design elements to gamefulness	Conference: Mindtrek'11	Scopus Search	gamification, design	Results: 5764 documents, 1st on the list, 4778 citations

Table 5 continued on next page

Hofacker et al., 2016	Gamification and mobile marketing effectiveness	Journal of Interactive Marketing	Scopus Search	mobile apps, gamification, marketing	Publication Years: 2015 and above Results: 30 documents, 1st on the list, 259 citations
Jilka et al., 2021	Terms and conditions apply: Critical issues for readability and jargon in mental health depression apps	Internet Interventions	Scopus Search	mobile apps, health, terms and conditions, privacy	Publication Years: 2020 and above Subject Area: Medicine Document Type: Article Language: English Keywords: Mobile Application & Mobile Applications Result: 8 documents, 7th on the list, 2 citations
Leclercq et al., 2020	When Gamification backfires: the impact of perceived justice on online community contributions	Journal of Marketing Management	Web of Science Search	gamification, sales	Publication Years: 2020 and above Result: 33 documents, 1st on the list, 45 citations
Peng et al., 2016	A qualitative study of user perceptions of mobile health apps	Database: BMC Public Health	Web of Science Search	mobile apps, health, user perception	Publication Years: 2015 and above Document Type: Article, Open Access Result: 200 documents, 2nd on the list, marked as a highly cited article (220 citations)
Schell, 2008	The Art of Game Design: A Book of Lenses	N/A - Reason: Book	Backwards Citation from Hofacker et al., 2016	N/A	N/A
Shabir et al., 2022	The Barriers and Facilitators to the Use of Lifestyle Apps: A Systematic Review of Qualitative Studies	European Journal of Investigation in Health, Psychology and Education	Web of Science Search	lifestyle apps, health, barriers	Publication Years: 2020 and above Document Type: Review Article Result: 7 results, 2nd on the list, 6 citations
Wunderlich et al., 2020	The great game of business: Advancing knowledge on gamification in business contexts	Journal of Business Research	Backwards Citation from Bitrián et al., 2021	N/A	N/A
Yan et al., 2021	Mobile apps for healthy living: Factors influencing continuance intention for health apps	Technological Forecasting & Social Change	Web of Science Search	mobile apps, health, usage	Publication Years: 2020 and above Document Type: Article, Open Access Result: 269 documents, 3rd on the list, marked as a highly cited article (66 citations)

Table 5. Relevant empirical studies for the literature review and their obtainment methods.

9.1.2. Searching and selecting

Scopus allows for filtering based on the number of citations, but also provides filters, such as *year range*, *subject area*, *document type*, *language*, or *keyword*, for obtaining accurate results. Commonly cited articles are often more trustworthy and relevant, as this indicates previous researchers have referenced this specific work in the past. Additionally, finding similar information across multiple articles can help check and validate the research.

Selection means filtering papers. The filtering process can be seen as a feast or famine of outcomes (Wolfswinkel et al., 2013), meaning the researcher could still have too many or too few articles by the end of this process. In this case, previous steps need to be revisited, and documenting search terms and search outcomes is highly important for a transparent review (Wolfswinkel et al., 2013).

Overall, filtering allows for the creation of a compact set of articles for conducting the literature review. There are five steps for filtration. Firstly, any doubles should be removed (Wolfswinkel et al., 2013). Secondly, the sample needs to be refined further through initial reading and skimming, as the title and abstract can already decide the relevancy of an article (Wolfswinkel et al., 2013). The sample is additionally refined by reading the full text (Wolfswinkel et al., 2013). Moreover, further enriching the quality of the sample can be accomplished by checking forward and backward citations (Wolfswinkel et al., 2013). Lastly, the researcher needs to constantly check if any new articles have come up in the last iteration (Wolfswinkel et al., 2013), meaning that if new relevant articles appear during these steps, they should also be put through this process. If data is exhausted, the researcher now has their final sample.

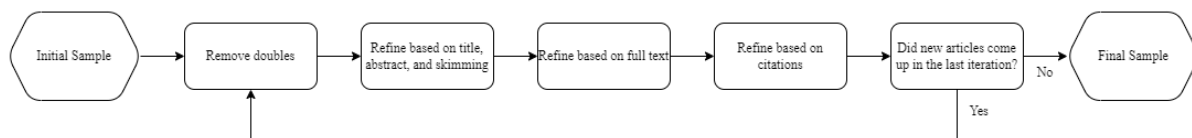


Figure 15. Selection stage of the literature review methodology, based on Wolfswinkel et al. (2013).

As mentioned previously, tables are great tools to enhance trustworthiness in qualitative research, as they provide a clear view of the data collection and analysis processes (Cloutier & Ravasi, 2020). Thus, the table below details the reasons for article selection:

Study	Title	Journal	Reason for Selection
Bitrián et al., 2021	Enhancing user engagement: The role of gamification in mobile apps.	Journal of Business Research	An article that focuses on one of the most important points of this paper, Bitrián et al. (2021) provides highly useful insight into user engagement. Finding this article was mandatory for the literature review, as it provided information to fill in some gaps that were left in the literature review itself.
Deterding et al., 2011	From game design elements to gamefulness	Conference: Mindtrek'11	This paper is vital for the literature review, and was chosen since it looks at game-like elements and their implementation within mobile apps. The paper also provides well-crafted definitions that allow readers to understand the difference between serious gaming, gamification, playful design, and toys.
Hofacker et al., 2016	Gamification and mobile marketing effectiveness	Journal of Interactive Marketing	This is the main paper of the <i>gamification</i> section of the literature review, and it takes an in-depth look at mobile gamification within the context of marketing. The literature review establishes the fact that lifestyle apps have poor marketing campaigns. Marketing effectiveness within the context of gamification is the perfect idea to help solve this limitation.

Table 6 continued on next page

Jilka et al., 2021	Terms and conditions apply: Critical issues for readability and jargon in mental health depression apps	Internet Interventions	This unique study provides insightful information regarding data processing, privacy, and the semantics of app terms and conditions. It was selected based on its conclusions.
Leclercq et al., 2020	When Gamification backfires: the impact of perceived justice on online community contributions	Journal of Marketing Management	This paper provides a contrasting view to gamification that helps determine limitations, but also possible areas for improvements.
Peng et al., 2016	A qualitative study of user perceptions of mobile health apps	Database: BMC Public Health	This research tackles user perceptions of mobile apps, since awareness is an important subject that is often left undiscussed.
Schell, 2008	The Art of Game Design: A Book of Lenses	N/A - Reason: Book	The use of the <i>Elemental Tetrad Model</i> within the context of this literature review was initially discovered in the paper by Hofacker et al. (2016). The ETM proposes four different elements, which, when combined, encourage the positive marketing outcomes of gamification.
Shabir et al., 2022	The Barriers and Facilitators to the Use of Lifestyle Apps: A Systematic Review of Qualitative Studies	European Journal of Investigation in Health, Psychology and Education	This paper provided schematics with limitations and benefactors within the context of lifestyle apps. Additionally, it initially provided ideas for the structure of the literature review, although this changed as the review process advanced.
Wünderlich et al., 2020	The great game of business: Advancing knowledge on gamification in business contexts	Journal of Business Research	This paper provides a framework for analyzing the impact of gamification on emerging research areas within lifestyle apps.
Yan et al., 2021	Mobile apps for healthy living: Factors influencing continuance intention for health apps	Technological Forecasting & Social Change	One of the main papers of the literature review, Yan et al. (2021) offers a great number of notions within the described hypotheses that relate to user engagement and retention in the domain of mobile apps.

Table 6. Literature Review Selection Reasoning, based on Wolfswinkel et al. (2013).

9.1.3. Analyzing

The analysis stage expressly applies the key concepts of grounded theory (Wolfswinkel et al., 2013). There are three coding methods, which should be applied systematically and can become intertwined: open coding, axial coding, and selective coding (Wolfswinkel et al., 2013).

Open coding involves picking random papers, reading, and highlighting all the text that seems relevant for the research when thinking about the scope and research question (Wolfswinkel et al., 2013). Extracting these excerpts and re-reading them creates different concepts, which are ideally mutually exclusive or well-defined (Wolfswinkel et al., 2013). Thus, open coding allows for researchers to conceptualize hidden aspects within excerpts of papers that were deemed relevant (Wolfswinkel et al., 2013). As concepts emerge, comparative analysis is applied, meaning that, based on similarities and

differences, the identified categorizations are continuously compared, related, and linked (Wolfswinkel et al., 2013).

The researcher can identify, label, and build a set of concepts, or categories, to use for the literature review (Wolfswinkel et al., 2013). Axial coding involves building these categories around the codes that were established (Wolfswinkel et al., 2013). Moreover, axial coding looks at the interrelations between categories and their subcategories, including their properties (Wolfswinkel et al., 2013).

Ultimately, higher-order categories are established through selective coding (Wolfswinkel et al., 2013). These contain core concepts that represent the main themes of the studies' findings in the data (Wolfswinkel et al., 2013). A high-order category in the case of literature review can be identified as categories that either directly concern the subject of the review or the research question (Wolfswinkel et al., 2013).

Thus, the table below, which is similar to Table 1, showcases the main concepts within the literature review, and the domains they cover. It should be noted that while many of the papers within this table may tackle more concepts than are marked with a check, only the main concepts that were relevant for the literature review are highlighted. Any additional concepts that may be relevant are written down in the *Other(s)* column.

Study	Title	Concepts					
		Motivation	Design	Marketing	Lifestyle/ Mobile Apps	Gamification	Other(s)
Bitrián et al., 2021	Enhancing user engagement: The role of gamification in mobile apps.	✓			✓	✓	
Deterding et al., 2011	From game design elements to gamefulness		✓		✓	✓	
Hofacker et al., 2016	Gamification and mobile marketing effectiveness	✓	✓	✓	✓	✓	
Jilka et al., 2021	Terms and conditions apply: Critical issues for readability and jargon in mental health depression apps		✓		✓		Health-care
Leclercq et al., 2020	When Gamification backfires: the impact of perceived justice on online community contributions	✓	✓	✓		✓	
Peng et al., 2016	A qualitative study of user perceptions of mobile health apps	✓		✓	✓		Health-care

Table 7 continued on next page

Schell, 2008	The Art of Game Design: A Book of Lenses		✓			✓	
Shahir et al., 2022	The Barriers and Facilitators to the Use of Lifestyle Apps: A Systematic Review of Qualitative Studies				✓	✓	<i>Note: Provides a broad overview</i>
Wunderlich et al., 2020	The great game of business: Advancing knowledge on gamification in business contexts	✓	✓		✓	✓	
Yan et al., 2021	Mobile apps for healthy living: Factors influencing continuance intention for health apps	✓		✓	✓		

Table 7. Detailed Concept Matrix, based on Wolfswinkel et al. (2013).

9.1.4. Presenting

Once data has been gathered, the findings must be presented appropriately. The findings from the previous stage allow for different methods of presenting and structuring the content (Wolfswinkel et al., 2013).

First, a brief introduction states the scope, as well as how the topic is approached by the researcher (Wolfswinkel et al., 2013). Additionally, the relevance of the literature review is highlighted, while offering insights on the definitions of key terms (Wolfswinkel et al., 2013). Moreover, findings are discussed, and the possibility of future researched is suggested (Wolfswinkel et al., 2013). Finally, implications for new research options and practices, as well as limitations in the field, are mentioned (Wolfswinkel et al., 2013). A small conclusion then wraps up the literature review, and makes way for the methodology section.

9.2. Appendix B – Informed Consent Form

Consent Form for Research – Lifestyle Apps: Using Gamification to Thrive in a Saturated Market

YOU WILL BE GIVEN A COPY OF THIS INFORMED CONSENT FORM

Introduction

This paper investigates the use of gamification for increasing the continuance intention of lifestyle apps. Questions within this interview relate to how various aspects may impact a user's perception of the app in order to increase overall user traffic and engagement.

Please tick the appropriate boxes

Yes No

Taking part in the study

I have read and understood the study information dated [DD/MM/YYYY], 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. Yes No

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason. Yes No

I understand that taking part in the study involves the recording of audio on Microsoft Teams in order to generate a transcript. Once the research has been completed, all transcripts and recordings are deleted. Yes No

I understand that I have the right to ask for and provide feedback regarding my transcript. Yes No

Use of the information in the study

I understand that information I provide may be included in the report of the Master's thesis [e.g. anonymous quotes to illustrate the findings]. Yes No

I understand that personal information collected about me that can identify me, such as [e.g. name or address], will be anonymized, and will not be shared beyond the study group. Yes No

Signatures

I freely consent to taking part in the study.

Name of participant

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

Signature

Date

Study contact details for further information: Theodor-Mihail Manole, t.manole@student.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, 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

Please note that the title of the research has seen slight adjustments since the participants first signed this form, but the picture above applies for this paper.

9.3. Appendix C – Interview Template

A. Personal Questions

1. Please share some basic details about yourself...
 - a. How old are you?
 - b. What is your gender?
 - c. What is your nationality/ethnicity?
2. I'd like to ask a few questions about your personal use of mobile devices. If you are not sure about the answers to the following questions, please open the settings app on your phone and search for *Digital Wellbeing and Parental Control*.
 - a. How many hours a day do you approximately spend on your phone?
 - b. What are some of your most-used apps?
 - i. What are your most-used lifestyle apps?
 - ii. If not stated yet, what do they focus on?
 - iii. Where do your lifestyle apps rank in terms of personal importance among all apps?

Please select your most-used lifestyle app or the one you perceive as the most important to your routine. This is the app that we will focus on for the rest of the interview, but if you'd like to reference other lifestyle apps in your answers, please feel free to do so.

B. Questions about Lifestyle Apps

3. Motivation – based on Bitrián et al. (2021). Are there any personal factors that encouraged you to start using lifestyle apps regularly?
 - a. What effects has this app had on you? Both positive and negative answers are welcomed.
4. Design – based on Deterding et al. (2011); Jilka et al. (2021); Shabir et al. (2022). What features do you believe are the most interesting or useful within this app?
 - a. Are there any particular features that take away from the overall experience?
 - i. Are there any other particular barriers that you have noticed within this app? (i.e., from a design, ease-of-use, or personal enjoyment perspective)
 - b. Are you concerned about the use of personal data in lifestyle apps?
 - i. Does data privacy affect the way you use apps?
5. Marketing – based on Hofacker et al. (2016). Have you ever bought a subscription plan or the full version of any lifestyle app?
 - a. How do you perceive the financial health of companies that focus on creating lifestyle apps?
 - i. Lifestyle apps often lack strong marketing campaigns. Has marketing material ever influenced your decision to download an app or acquire a plan?
 - ii. What type of marketing material could influence your decision?
6. Conclusion: When you look back on your history with the chosen app, are there any periods of time that managed to retain your interest? Please justify what contributed to this (e.g., personal factors, or perhaps outside motivators).
 - a. Conversely, are there any periods of time when you saw your app usage decrease? Please justify what may have caused this.

Gamification is the use of game-like mechanics with the purpose of enhancing non-game goods and services. Think about how Duolingo offers experience and rewards for achieving certain feats, all while the core of the app is to teach the user a new language. Thus, gamification's aim is to increase user engagement. This section will focus on whether you believe gamification would make you feel more connected to the app.

C. Questions regarding the Effects of Gamification

7. Opening Question: Are there any game-like elements in your chosen app?
8. Motivation – based on Hofacker et al. (2016). Are there any specific instances in which game-like elements motivated you to continue using any app?
 - a. Are there any specific instances in which game-like elements made an app less immersive?
 - b. Which particular game-like elements had a positive or negative influence?
9. Design – based on Deterding et al. (2011); Hofacker et al. (2016). Would you say that you are used to game-like elements in non-game environments? Please justify.
 - a. Do you believe such elements would help improve your app usage and overall engagement with the app?
 - i. Personalization is such an element that can help improve engagement; it can be understood as both customization and accessibility. To what extent do you value personalization within gamified apps? Please justify.
 - b. Do you believe the overall feel or core of the app is more important than the use of game-like elements, or the other way around?
 - c. Do you believe marketing game-like elements specifically would have an impact on you?
10. Marketing – based on Hofacker et al. (2016). Are in-app promotional campaigns likely to influence your app usage? For instance, imagine receiving a pop-up or an email saying you have obtained a 7-day free trial of the app.
 - a. Incorporating gamification into promotional activities outside of an app can make for a more interactive form of marketing. Think about receiving points for spending a certain amount of money at a store. Would this factor make you more inclined to engage with the app?
11. Possible Adverse Effects (Limitations) – based on Leclercq et al. (2020). Have social game-like elements, such as leaderboards or special events, fostered a positive or negative sense of competition among you and your friends?
 - a. Does this social element define the overall experience, or is it just another aspect of gamification?
12. Possible Adverse Effects (Limitations) – based on Leclercq et al. (2020). Is there a threshold in which gamification becomes counterproductive and overwhelming instead of fun and exciting?
 - a. What do you think the ideal balance between game-like elements and the app's core functionality should be? (i.e., how much influence should game-like elements possess)
 - b. Do you believe certain people may be predisposed to reaching that threshold quicker than others?
13. Feedback: Have there been any moments when a lifestyle app has solicited your feedback?
 - a. If you have not provided feedback, what could the developers have done differently to entice you into reviewing the app?
 - b. If you have provided feedback, please briefly describe it. Have developers ever responded to and/or implemented your feedback?
 - c. Would gamified feedback options improve response rates? (i.e., in-app rewards for responding, or a game-like feedback process)
14. Lifestyle Apps & Gamification (Conclusion): What is your overall experience with lifestyle apps?
 - a. Do you believe additional gamification would improve your experience?

9.4. Appendix D – First Order Codes

1	Lifestyle apps' content provides numerous personal benefits regarding their purpose
2	The cost of the premium version can be a deterrent (including its acquisition process)
3	The organization of content may impact the user (+/-)
4	Repetitiveness may negatively impact user perception
5	Features and options improve retention (including GLE and customization)
6	The intrusiveness of ads has an impact on the user (which is generally negative)
8	The creators need to show that they care about the app (e.g., through regular updates)
9	Ad targeting is often lacking
10	The LA needs to grab your attention from the get-go
11	The inaccuracy of the content may negatively impact user perception
12	Personal consistency plays a big part in the user's app usage
13	GLE provide satisfaction to the user
15	GLE improve the user's app usage
17	Aesthetics impact ease of use (+/-)
18	Too many GLE or features can take away from the core experience
19	Predatory mechanics or data handling within LAs, (e.g., features stuck behind paywalls)
20	Preying on vulnerability (e.g., encouraging addictive behavior)
21	LAs provide content that replaces real-life activities (i.e., ease of access)
23	Aesthetics impact app perception (+/-)
24	A generational difference impacts ease of use (+/-)
25	Notification intrusiveness can have an impact on the user (which is generally negative)
26	Generational differences may impact the way advertising is perceived (+/-)
27	Exploitable game mechanics (leading to an impact on social relationships)
28	Certain disorders may impede ease of use and accessibility
29	Word of mouth can have an impact on potential users' decision to join an app (which is generally positive)
30	Social events can bring a sense of togetherness
33	The interviewee is open to trying new things, including app trials
34	The usage of LAs in parallel with smartwatches positively impacts usage
35	People who are less used to social GLE may shy away from such LAs
37	The interviewee wishes to relate to the app through meaningful interaction
38	Encouraging friends to establish a healthier routine
39	Proportionality of the reward depends on how the user perceives the difficulty of the task (i.e., time cost)
40	The reward system in the discussed LA is not developed enough

Table 8. List of first-order concepts, color-coded by second-order themes.

Note #1: Each color represents the following second-order themes:

- The variety of an app's content keeps users engaged: dark blue. (Codes #4, #11, #18)
- The adequate value of an app's content provides satisfaction: blue. (Codes #5, #13, #15, #30, #34, #40)
- Personal factors decide whether the user uses the app in the moment: light blue. (Codes #1, #12, #35, #38)

- The image the app portrays can impact app usage: green. (Codes #8, #23, #26, #29, #33)
- Costs of using the app: light green. (Codes #2, #39)
- Organization & Ease of use: orange. (Codes #3, #6, #17, #21, #24, #25, #28)
- The impact the app has can affect app usage: red. (Codes #9, #10, #37)
- Respectful and realistically achievable content: dark red. (Codes #19, #20, #27)

Note #2: GLE is an abbreviation for *game-like elements*. LA(s) is an abbreviation for *lifestyle app(s)*.

Note #3: Since there were originally 43 first-order concepts, the list may skip over some numbers, as 10 codes were rephrased or integrated into other pre-existing codes.

9.5. Appendix E – Example of Interview Transcript

For additional validity and reliability purposes, a sample interview has been included in this appendix. The participant agreed to having their entire interview appear within the report, however, all personal details that were not explicitly asked for have been censored or replaced with vague descriptions to keep anonymity intact.

Interview 6

0:0:8.260 --> 0:0:25.910

Researcher

So I'll start off with my questions. I've got 3 categories of questions for my interview, so some are basic personal questions. Then questions regarding lifestyle apps and then the effects of gamification on lifestyle apps. So first, let's start off with a few basic details about yourself.

0:0:25.620 --> 0:0:26.0

Interviewee 6

OK.

0:0:26.430 --> 0:0:27.290

Researcher

How old are you?

0:0:26.10 --> 0:0:28.950

Interviewee 6

Yeah, I am 25 years old.

0:0:29.920 --> 0:0:30.600

Researcher

What is your gender?

0:0:31.350 --> 0:0:31.690

Interviewee 6

Female.

0:0:32.630 --> 0:0:33.880

Researcher

And what is your nationality slash ethnicity?

0:0:35.450 --> 0:0:36.240

Interviewee 6

Dutch. Turkish.

0:0:37.280 --> 0:0:45.470

Researcher

And now I'd like to ask you a few questions about your personal use of mobile devices. So how many hours a day would you say you approximately spend on your phone?

0:0:46.720 --> 0:0:53.350

Interviewee 6

Just overall, not specifically on health app, but just like overall on my uh, I would say around 7 hours.

0:0:54.200 --> 0:0:57.610

Researcher

Alright, what are some of your most used apps?

0:0:58.790 --> 0:1:0.210

Interviewee 6

Mostly social media platforms.

0:1:1.490 --> 0:1:5.220

Researcher

And what are the— What are some of your most used lifestyle apps?

0:1:6.840 --> 0:1:15.70

Interviewee 6

It's mostly the health app of the of the iPhone itself. Just like tracking my how I do overall and how many steps I take on a daily basis.

0:1:17.640 --> 0:1:22.690

Researcher

Uhm. And where do you think your lifestyle apps rank in terms of personal importance among all apps?

0:1:24.420 --> 0:1:31.0

Interviewee 6

Compared to other apps, I would say maybe second or third, definitely not my priority.

0:1:31.940 --> 0:1:37.280

Researcher

All right, then. I'll ask you to select one of your most used or your favorite lifestyle app.

0:1:41.970 --> 0:1:42.510

Interviewee 6

Yes. Yeah.

0:1:37.940 --> 0:1:51.0

Researcher

I guess we'll continue with the the Apple Health app, all right. But if you'd like to reference any other lifestyle apps or any other apps in general in your answers, please feel free to do so.

0:1:50.540 --> 0:1:51.0

Interviewee 6

OK. Yeah.

0:1:52.80 --> 0:1:58.920

Researcher

Alright, so starting the lifestyle app questions, are there any personal factors that encourage you to start using lifestyle apps regularly?

0:2:0.70 --> 0:2:22.420

Interviewee 6

Uh, yeah, for me, I started, uh, actually, being more physically active over like like like two years ago. And I also knew that there was an application of the iPhone itself that tracked the amount of steps that I take on a daily basis. So actually it's kind of motivates me to start using it and to check it regularly, like how many steps did I take on a day and so on.

0:2:22.340 --> 0:2:38.170

Researcher

Umm, umm and what effects has this apps had on you? Both positive and negative, if any.

0:2:29.210 --> 0:2:51.500

Interviewee 6

In in positive terms I checked regularly and I get motivated when I see that I did more steps compared to, for example, last week. So in that sense, it motivates me to walk more and the only negative side is that it's not always accurate. So sometimes I don't walk for example and it still counts the steps and that kind of like is negative side of the application.

0:2:52.870 --> 0:2:58.990

Researcher

Alright. Umm. In terms of design, what features do you believe are the most interesting or useful within this app?

0:3:0.180 --> 0:3:7.70

Interviewee 6

Uh, I would say that the steps and the active energy, it also shows you how much how much calories you burnt and how much active energy you have. So that's— It's very nice to see that on the on the summary table.

0:3:11.230 --> 0:3:16.770

Researcher

All right. Are there any particular features you feel take away from the overall experience?

0:3:18.970 --> 0:3:21.240

Interviewee 6

To be honest, I don't think so. No, I think it's in that sense. Good.

0:3:22.590 --> 0:3:32.500

Researcher

All right, all right. And any other particular barriers you've noticed within this app from a design or ease-of-use or just personal enjoyment perspective?

0:3:33.170 --> 0:3:46.530

Interviewee 6

For me, for example, there's also, I think, uh, a way to measure your heart rate. But for that I have to use another— For example, I think an Apple Watch or something to also measure my heart rate. So it's kind of like limiting on those things.

0:3:47.490 --> 0:3:54.730

Researcher

Mhm, alright, nice, good answer. And in terms of privacy, are you concerned about the use of personal data and lifestyle apps?

0:3:55.780 --> 0:4:2.490

Interviewee 6

No, because I also kind of limit how much I allow them to use my personal data. So in that sense, I'm not. I'm not that concerned to be honest.

0:4:3.410 --> 0:4:7.710

Researcher

Uh, so does data privacy affect the way you use apps in general then?

0:4:9.300 --> 0:4:23.880

Interviewee 6

No, because I feel like I can kind of limit that. So I'm not really concerned unless it's like an

application such as Facebook who has been in the news about the data privacy issues. I kind of trust it because I've not allowing the application to use a lot of my data.

0:4:25.430 --> 0:4:32.810

Researcher

All right. Have you ever bought a subscription plan or the full version of any lifestyle app?

0:4:33.740 --> 0:4:35.260

Interviewee 6

Nope, I didn't.

0:4:36.240 --> 0:4:43.520

Researcher

Alright, different question then about marketing, how you perceive the financial health of companies who focus on creating lifestyle apps?

0:4:45.550 --> 0:4:46.370

Interviewee 6

Could you repeat it again?

0:4:47.340 --> 0:4:55.980

Researcher

How do you perceive the financial health of companies who focus on creating lifestyle apps? So do you believe that they're making a decent profit, or that they're breaking even, losing money?

0:4:57.80 --> 0:5:10.180

Interviewee 6

I think like uh, when you compare, it, for example maybe 10 years ago, it was not the case. But I think recently since more people are using applications and lifestyle apps, I think they're doing better. In my opinion. That's what I think at least.

0:5:10.880 --> 0:5:23.750

Researcher

All right. Yeah, good answer. And then, lifestyle apps do often still lack strong marketing campaigns. Has marketing material ever influenced your decision to download an app?

0:5:24.180 --> 0:5:26.800

Interviewee 6

It did never. I think in that says the marketing could be better.

0:5:28.320 --> 0:5:30.280

Researcher

In what ways, do you believe?

0:5:30.770 --> 0:5:59.260

Interviewee 6

And I think they kind of need something in their marketing style to provoke people to use their apps. Because I think in general when when there are health apps, for me it's kind of like, they're all the same. So I would say a marketing or commercial or something like that would not really affect me into downloading an application unless they have like a very nice user interface, or they provide additional things that kinda would like, took me into downloading the applications.

0:6:0.150 --> 0:6:3.110

Researcher

Hmm, so you want like that unique element, right?

0:6:2.930 --> 0:6:3.820

Interviewee 6

Yes, exactly. Exactly, yeah.

0:6:4.490 --> 0:6:19.580

Researcher

Mhm. Do you believe other types of marketing material though? Such as, let's just say word of mouth instead of mark— You know, general advertising would be a factor that would influence you to acquire a lifestyle app?

0:6:21.40 --> 0:6:22.970

Interviewee 6

Uh, I'm not sure to be, honest.

0:6:24.480 --> 0:6:26.190

Researcher

Not easily influenced by others then.

0:6:26.390 --> 0:6:27.390

Interviewee 6

No, no, no.

0:6:28.200 --> 0:6:29.70

Researcher

OK, great.

0:6:29.860 --> 0:6:46.390

Researcher

And then when you look back on your history with the chosen apps, are there any periods of time that managed to retain your interest and why? And then conversely as well, are there any periods of time that— in which you saw your app usage decrease and lie?

0:6:47.600 --> 0:7:13.450

Interviewee 6

During the summer, for example, I do walk more since, for example, if I'm abroad, I try to use less uh cars and bus and stuff, so I walk more and then I see it back in the application that I did more and that kind of like motivates me to walk also more. And then when I come back to [home country], for example, I see an immediate decrease in the number of steps that I've taken. So I would say during the summer period, I'm like more motivated than when I'm back to [home country].

0:7:14.820 --> 0:7:23.270

Researcher

All right. And then also, yeah, so any periods of time in which it managed to retain your interest, why would you say that is?

0:7:25.840 --> 0:7:30.70

Interviewee 6

If it retains my interest, I would say the summer period, yeah.

0:7:28.970 --> 0:7:32.310

Researcher

Oh yeah, sorry the other— the other way around. Sorry, yeah.

0:7:32.640 --> 0:7:44.580

Interviewee 6

Oh yeah, I probably so when I come back from my holidays, but also during the wintertime because I'm not really motivated to go outside in the cold. So I think that's when it's like, not really into in my interest.

0:7:45.450 --> 0:8:24.550

Researcher

Alright, yeah, I see. I see. And then. Now we move on to the gamification questions; I'll briefly describe the concept. So gamification is the user game like mechanics with the purpose of enhancing non-game goods and services. So, just think about Duolingo, how it offers experience or awards etcetera for achieving certain feats, all while the core of the app is still to teach the user a new language. So, you can say that gamification's aim is to increase user engagement, and this section will focus on whether you believe gamification can make you feel more connected to the app. Umm, first of all, are there any game like elements in your chosen app?

0:8:26.0 --> 0:8:26.650

Interviewee 6

Not at all.

0:8:27.330 --> 0:8:27.800

Researcher

Not at all.

0:8:27.220 --> 0:8:30.70

Interviewee 6

Nope, it's pretty straightforward. No gamification elements.

0:8:31.70 --> 0:8:31.520

Researcher

Alright.

0:8:32.230 --> 0:8:39.100

Researcher

Are there any specific instances in which game-like elements motivated you to continue using another app?

0:8:40.400 --> 0:9:2.540

Interviewee 6

Uh, I think when there's some sort of like, I would say, if I can compare myself with someone else while using the application—for example, if I do better or just like achievements in the end—that would motivate me more. So for example, a gamification element that would motivate me and my friend to use the app and then let let let, let's say fight against each other to do better.

0:9:3.350 --> 0:9:11.420

Researcher

Mhm. Umm, are there any specific instances in which game like elements made an app less immersive, in your opinion?

0:9:13.400 --> 0:9:26.960

Interviewee 6

Uh, not directly, but I can think, for example, if it requires too much of my data and if it if it doesn't work without using a lot of data, I think that would kind of, uh, would not like stand out to me.

0:9:29.460 --> 0:9:46.10

Researcher

Mhm. Uh, the next question you've kinda answered I guess, but maybe there's also negatives you

could mention. So, which particular game like elements have had a positive or negative influence? So you've mentioned like the social aspect, leaderboards, competition. Any negative— any negatives as well?

0:9:43.330 --> 0:10:14.490

Interviewee 6

Yes. Uh, let me see what I think. If it's too difficult to use or it's complicated to use the application so the user friendliness being less, I think that would kind of be on the negative side. Because it should be like easy to use for me, and also you need to understand that, otherwise it's like too complicated and you kind of lost the motivation to use the application. And even though even even though there would be like gamification elements, I think it would kind of like not motivate you to use the application.

0:10:15.870 --> 0:10:23.50

Researcher

Mhm. Then, next question is, are you used to game like elements in non-game environments?

0:10:24.420 --> 0:10:26.290

Interviewee 6

Yeah, I would say, yeah.

0:10:27.700 --> 0:10:35.480

Researcher

And do you believe such elements would improve your app— uh usage of Apple health and overall engagement with the app?

0:10:36.110 --> 0:10:36.950

Interviewee 6

Definitely, yeah.

0:10:38.600 --> 0:10:43.850

Researcher

And personalization can also be such an element. To what extent do you value personalization within gamified apps?

0:10:44.940 --> 0:11:3.230

Interviewee 6

I do highly and specifically in lifestyle apps. I would use lifestyle app mainly because it concerns me, so it's about me and improving my health. So in that sense, if it could personalize, it would be the best actually. And the gamification part would be the entertaining part that would keep me using the application.

0:11:4.200 --> 0:11:13.530

Researcher

All right, good answer. Do you believe the overall feel or core of the app is more important than the use of game like elements, or the other way around?

0:11:15.200 --> 0:11:15.980

Interviewee 6

Could you repeat it again?

0:11:16.780 --> 0:11:24.150

Researcher

Do you believe that the overall feel or core of the app is more important than the implementation of game-like elements?

0:11:24.750 --> 0:11:26.310

Interviewee 6

Yeah, I think, yeah, I I believe so, yeah.

0:11:28.720 --> 0:11:32.140

Researcher

Uhm, any more detail you could add?

0:11:32.160 --> 0:11:51.390

Interviewee 6

I I would say well, if the application, the core part is not really interesting, I don't think I would really be inclined to download it and use it and then look at the other part, so just the gamification. So I think it's important that the core of the application is also kind of attractive so that I can download it and use it in the first place.

0:11:52.100 --> 0:11:58.580

Researcher

Mhm. Umm do you believe marketing game like elements specifically would have an impact on you?

0:12:0.940 --> 0:12:5.260

Interviewee 6

Actually, in the positive sense, yeah, I think it would motivate me to use the application if there would be.

0:12:9.450 --> 0:12:19.30

Researcher

Are in app promotional campaigns likely to influence your app usage? So for instance, let's say there's a pop up on the app that says you've got a 7 day free trial of the app.

0:12:20.640 --> 0:12:41.690

Interviewee 6

Uh, I generally am the person who's like, uh, declining those offers. Because unless the application is like really interesting, I would go for it. I would even do a subscription, but otherwise I'm not really actually into, you know, even though there would be some trial that I would use it. It's just it's just my opinion, I don't know.

0:12:42.160 --> 0:12:58.60

Researcher

Mhm, mhm, alright. And then incorporating gamification into promotional activities outside of an app can also make for a more interactive form of of marketing. So think about receiving points for spending a certain amount of money at a store. Would this factor make you more inclined to engage with the app?

0:12:59.920 --> 0:13:2.360

Interviewee 6

Uh could actually provide more examples with which you mean with that?

0:13:3.560 --> 0:13:21.590

Researcher

So for instance, I saw even though it's not related to gamification like Starbucks, when you spend a certain amount of money or something like that, it could also translates into credit for promotions and things like that. So like getting discounts for other stuff. The more you visit the place.

0:13:20.310 --> 0:13:41.460

Interviewee 6

OK. Mm-hmm. Yeah. I think if that would be the case, but the regarding lifestyle, I'm not sure whether that would kind of motivate me, but in other cases an application—if they would have such an offer—I think there would motivate me to actually buy more and like go there more often for the reward support.

0:13:42.610 --> 0:13:52.330

Researcher

And the way I was thinking is like, you know that lifestyle have like having a promotional campaign like tying in with a bigger store. You know what I mean?

0:13:52.910 --> 0:13:53.470

Interviewee 6

OK. Yeah.

0:13:53.10 --> 0:14:6.270

Researcher

Like, yeah, like, I don't know, some store promotes like healthy activities and partners up with a, a lifestyle app to promote that. And then the more you buy from that store, the better the deals you get, something like that, you know?

0:14:7.180 --> 0:14:7.750

Interviewee 6

Yeah, yeah, yeah.

0:14:8.80 --> 0:14:8.400

Researcher

Yeah.

0:14:7.760 --> 0:14:8.570

Interviewee 6

I I think it would.

0:14:8.450 --> 0:14:11.40

Researcher

If that's clear, if that's clear.

0:14:8.720 --> 0:14:23.170

Interviewee 6

Yeah. Thank you. It would definitely motivate me. Yeah, I even though we lifestyle app or whatever, I think it it would still motivate me to you know be a part of those activities they have offline to get the rewards.

0:14:26.560 --> 0:14:37.890

Researcher

Alright, nice. And then in terms of limitations, have social game like elements such as leaderboards or special events fostered a positive or negative sense of competition in you and your friends?

0:14:38.130 --> 0:15:7.620

Interviewee 6

I think definitely positive I. That's what I think. Uhm, because I think in this way, if it's for example a lifestyle app, I am actually— my, my primary goal is to achieve my own health right. So if if I can turn it into competition with a friend, we would actually motivate each other to be, to become become a healthier person. So even though she would win or I would win, doesn't matter. I think it's a nice competition, unless this goes too far away and then you end up being no friends anymore.

0:15:7.790 --> 0:15:12.720

Researcher

Angry, salty at each other. You did better than you know, yeah.

0:15:10.990 --> 0:15:13.60

Interviewee 6

Yeah. Yeah, exactly.

0:15:14.320 --> 0:15:21.610

Researcher

Uhm. And would you say the social aspect is, is it like a definitive of the overall experience or is it just another aspect of gamification?

0:15:22.930 --> 0:15:25.150

Interviewee 6

I think it's just an aspect of gamification, yeah.

0:15:25.900 --> 0:15:34.360

Researcher

Mhm. Do you believe that there's a threshold in which gamification becomes counterproductive or overwhelming instead of fun and exciting?

0:15:35.890 --> 0:16:9.780

Interviewee 6

I think Uhm, even though they would have a lot of gamification that the average person would get bored of, I think if you can, like keep the competition just in a moderate way, it should be fine. The thing is like the application should not be too addictive for you to, you know, socialize with your friends and then forget about the main goal that you use the application for. So I think you should be like the person itself, should kind of like uh, how do you say that? Like put the brake on, like you should not do a lot of of the application.

0:16:10.590 --> 0:16:19.10

Researcher

Mm-hmm. Umm, what do you believe the ideal balance between the use of game-like elements and the app's core functionality should be?

0:16:21.120 --> 0:16:38.540

Interviewee 6

Can I give a percentage or? I would say 60 to 70% the core and then 30-40 the gamification parts. So the majority of the core and then still does, uh gamification would be important.

0:16:23.20 --> 0:16:23.400

Researcher

Yeah, sure.

0:16:39.190 --> 0:16:46.460

Researcher

Uh, do you believe certain people may be predisposed to reaching that threshold of counterproductivity quicker than others?

0:16:48.730 --> 0:17:8.440

Interviewee 6

Umm. I think this is really person-dependent so I think it's very difficult to answer this, but I think it kind of depends on your goals. Like if I'm very into my health, I wouldn't be, it would not have a negative effect easily than someone who's not that motivated.

0:17:13.40 --> 0:17:18.60

Researcher

Mhm. Uhm, in terms of feedback, have there been any moments in which a lifestyle app has solicited your feedback?

0:17:19.600 --> 0:17:31.390

Interviewee 6

Well, the application that I use right now does not really give me feedback, only that it only like, uh, mentioned that I have burned for example fewer calories than last week. So it's not really affecting...

0:17:30.780 --> 0:17:36.440

Researcher

Uh, no. I mean, if like— feedback for improving the app, if they've ever asked for any.

0:17:36.240 --> 0:17:55.950

Interviewee 6

Oh no, the application does not allow for the— they don't, they don't really send out like feedback form or something. Because the application's from iPhone itself, so they don't really ask for input, for feedback. But or other applications, for example, they do and then they ask you to rate the applications and what are the negative sides, positive sides.

0:17:57.760 --> 0:18:4.880

Researcher

And do you believe gamified feedback options would improve response rates? So like offering a reward for responding, something like that.

0:18:5.740 --> 0:18:20.600

Interviewee 6

I think so, yeah, definitely. I think it's an important part, specifically if you're into the gamification part of an application and there are some thing— there are some things that is not really, for example, user friendly or lacks in that in that gamification part. That would be very nice, yeah.

0:18:21.930 --> 0:18:30.90

Researcher

Mhm. And then a few concluding questions. Uhm, what is your overall experience with a lifestyle apps? How would you describe it?

0:18:31.500 --> 0:18:49.960

Interviewee 6

I think in general these applications really motivate me. It helps me, actually. Because for example, if I have a certain goal for walking a number of steps a day, the application kind of supports me, and shows me the insights, and how much I do on a daily basis. So in that sense, it's very nice.

0:18:52.300 --> 0:18:58.620

Researcher

Mhm. And do you believe any additional gamification features in this app would improve it for you?

0:18:59.400 --> 0:19:40.560

Interviewee 6

Definitely, yeah. Because this application, this app definitely lacks some gami— gamification part. But if I for example could link my Apple ID that a friend and then we could see each other on the map and how how everyone is doing in terms of like walking, running, that would definitely motivate me to walk and run more. So I— but the biggest problem in this application for me— Well, there's a sharing option, but I think like you need to share more data with other people, which I don't really

want to. But if there would be a definitely an ad or like marketing thing that would, like, promote sharing with friends, I think would be nice.

0:19:42.230 --> 0:19:50.940

Researcher

Alright. Thank you. That's everything, unless you've got anything else to add.

0:19:47.490 --> 0:19:52.90

Interviewee 6

No, thank you. Nice questions.

0:19:50.340 --> 0:19:57.660

Researcher

Alright, let me stop— let me stop the recording then.

9.6. Appendix F – Detailed Interviewing Overviews

This section aims to provide a quick but detailed overview of each interview and highlight the unique elements each participant provided. As previously explained, Anderson (2010) postulates that there is a tendency for authors to overuse quotes without extracting relevant information. Thus, interviewee answers are compared to one another in order to understand contrasting ideas and beliefs. Moreover, each interviewee reviewed and vetted these sections as being accurate to what they said during the interviewing process.

9.6.1. Interview 1

The first interviewee was an avid user of the meditation app *Waking Up*, which ranked quite highly among his most-used apps. He started using lifestyle apps due to the perceived benefits of meditation, and immediately saw the effects.

“I've heard about the multiple benefits that meditation has, both in terms of like the clarity of mind that it can give you, but also just it's good to like help with like anxiety or any like negative emotions,” he said when answering question 3.

Moreover, he was only one of two respondents who bought a subscription for a lifestyle app (the other one being Interviewee 9). Here, the costly price can be considered a deterrent for much of the general population.

“It's it's a subscription. It's not even the full version. That's the part. It's just the subscription for a year. [...] Basically they they sent me like a notification. At one point they were like, ‘Just for you, if you only pay £3000 you can have the full app.’ Yeah, on sale,” he said during question 5.

Additionally, *Waking Up* seems to include game-like elements, such as leveling, progression, and personalization. However, according to the interviewee, game-like elements should not be the primary motivator for using the app. This is a belief that many of the following interviewees shared, as mentioned in the *Findings*, except for interviewees 3 and 9, who preferred an equal balance between gamification and the core functionality of the app.

Overall, the interviewee had a positive outlook on lifestyle apps. However, he suggested not to overdo the elements of gamification, as they could also negatively impact certain types of people.

“Some people have more addictive behaviors than others [...] especially if you're like, I mean this is these are like extreme cases but like if you have like a gambling addiction [...] or you have any like mental health disorders at all, those those can make you specifically vulnerable to such tactics,” he said for question 12b.

9.6.2. Interview 2

This interviewee has used lifestyle apps much more sparingly than the previous participant. Moreover, he also currently uses non-lifestyle apps, such as Notes or Excel, with the purpose of keeping track of his lifestyle. While this interviewee mentioned using Headspace in the past, lifestyle apps did not rank highly in terms of overall importance.

Moreover, Interviewee 2 cited the importance of game-like elements, too. However, he considers them extrinsic motivation, thus meaning they do not act as a replacement for intrinsic motivation.

“It would be pretty neat, pretty impactful. I'd say it doesn't replace your own motivation,” he said regarding the use of game-like elements in question 8.

“And if you add in too many game elements, then you start to shift the focus of the meditation-based app with game elements to a game with meditation elements. I guess it's about the the quantity and the focus of the app,” he said for question 8a.

This interviewee also understood the need for balance between the core and the use of game-like elements. Therefore, the interviewee imagined two curves: one for the quality of the content, and one for the level of gamification.

“I'd say the focus and the content of the app is probably more important, but then you could probably have [...] two curves [...] And we probably have different results based on where the app would be with the quality of the, their, it's content and the the amount of gamification,” he explained during question 9b.

9.6.3. Interview 3

This interviewee also ranked lifestyle apps quite low in his personal life, and has previously used fitness apps and integrated lifestyle apps (i.e., lifestyle apps that come pre-installed on phones, and that are generally owned by major companies) in an effort to improve his habits. However, Interviewee 3 provided unique insight into the effects of advertising and the impact culture can have on individuals.

“Absolutely not. In fact, it uh sometimes does the opposite, where, uhm, advertisement campaigns are so like out of touch with the general population, or so awkward and pushy, and it just makes me avoid that certain app or program,” he said for question 5ai.

“I've been in an environment where you are taught to avoid [...] pushy marketing. And so I've developed a repulsion to certain marketing elements,” he said when answering question 9c.

However, while most interviewees were accustomed to game-like elements within non-game environments, and perceived gamification as a nice additional bonus to an app, Interviewee 3 was much more interested in the use of game-like elements. Thus, he thoroughly enjoys the benefits gamification brings.

“If, uh if an app just gives me a list of things to do and no, no, other elements, no gamifying, no UI, no customization, then again, I'm not incentivized to to do it,” he said for question 9b.

9.6.4. Interview 4

This interviewee mainly uses fitness and physical health lifestyle apps. However, their importance largely depends on personal factors, and when facing injuries, the lifestyle apps used serve less purpose.

“I often stop using the app when my fitness motivation also lacks. So then I'll go also drop the app at some point and also now that I have the the injury,” he said for question 6.

Moreover, Interviewee 4 had similar concerns to Interviewee 1 regarding addictive behaviors. Here, Interviewee 4 remarked the possibility of overwhelmingness stemming from the app's repetitive nature.

“At some point it gets too overwhelming [...] and you focus too much on it, so it gets too important. I'm gonna be weighing all my food through the the precise decimal and stuff like that,” he explained during question 3a.

However, the interviewee uniquely noted that real-life social events have positively impacted his motivation and app usage. Thus, lifestyle apps can bring fulfilling meaning to outdoor activities.

“A fitness challenge or something at the personal training thing nearby [...] and the goal was to lose as much much weight while maintaining your muscle mass [...] and that challenge also really motivated me to to stick to [the app],” he said for question 6.

Unfortunately, according to the interviewee, the chosen app's design was quite plain. Additionally, it did not provide adequate reasons for purchasing the paid version, further reinforcing Interviewee 3's belief that advertisement targeting can often be lacking.

“So it's kind of plain, it's not that interesting to look at. [...] It's just a plain app with— Where you can include your food,” he said for question 4ai.

“I don't really see why you would buy the pro version [...] I'm not a pro athlete that needs to really look into all of that,” he said during question 5a, referring to additional features.

9.6.5. Interview 5

Interviewee 5 often uses lifestyle apps thanks to her smartwatch, which pairs well with outside activities. Moreover, features such as the step counter provide a feeling of satisfaction when certain goals are reached.

“Uh, so seeing [...] the smartwatch with only maybe 1,000 steps would be like, I'm not moving very much or the other way around. Like, I was very happy when I walked more than 10,000,” she said for question 3b.

Moreover, many of the other interviewees often cited generational differences or familiarity with game-like elements when it comes to accessibility. However, Interviewee 5 took a look at the issue through the lens of social interaction.

“Yeah, maybe. Maybe people that don't really like to share or that [...] don't like to make this, like, social,” she said for question 12b regarding people who may be predisposed to reaching the threshold of overwhelmingness and counterproductivity faster than others.

This interesting concept can also be related to privacy. However, many of the respondents cited having few concerns regarding the privacy they are given when downloading lifestyle apps. More information regarding this topic can be found in the *General remarks* section of the *Findings*.

9.6.6. Interview 6

This interviewee did not consider lifestyle apps her main priority, but they were still quite important overall, as she tracks her steps every day. However, much like Interviewee 4, personal reasons may impact app usage.

“During the summer, for example, I do walk more [...]. If I'm abroad, I try to use less uh cars and buses and stuff, so I walk more. [...] And then when I come back to [home country], for example, I see an immediate decrease in the number of steps that I've taken,” she said during questions 6 and 6a.

Thus, this idea also encompasses seasonal activities, and depending on the user's environment, they may be more intrinsically motivated to use a certain app. However, since there are so many lifestyle apps available, for this interviewee to download or acquire a subscription, she said that she looks for a unique selling factor that sets that lifestyle app apart from the rest. This could range from an aesthetic to a design point of view, but the idea that marketing needs to be more prominent and target the right audience is reinforced once again.

“And I think they kind of need something in their marketing style to provoke people to use their apps. Because I think in general when there are health apps, for me it's kind of like they're all the same,” she said for question 5ai.

“Because unless the application is like really interesting, I would go for it. I would even do a subscription,” she said during question 10.

9.6.7. Interview 7

This interviewee ranked lifestyle apps near the bottom of his priorities, and also stated that he spends little time on his phone in general. However, much like the previous interviewee, he noted the usefulness of lifestyle apps during trips and vacations.

“Yeah, there has been actually uh, you know, we used to go on hikes with with my friends and the the step counter or like the the speed thing on the app would be really useful,” he said when answering question 6.

Thus, lifestyle apps can bring fulfilling meaning to outdoor activities. However, the interviewee also tackled the bigger picture, noting the importance of recent trends and growth within the physical and mental health domains.

“I think that, especially in recent years, there's, there has been a lot of focus on health and mental health. So I think that those companies might be doing good,” he said for question 5.

Overall, though, much like Interviewee 3, marketing seemed to lack direction for him. This, coupled with a variety of content that may not always target the right user, impacts the overall experience.

“Everybody's thinks they're, you know, immune to marketing. But no, I don't think there has ever been a time where I'm like ohh I I I saw an ad or something like that and I thought to myself, ‘Oh, I'm gonna download you know this app,’” he said during question 5ai.

“I don't wanna see like yoga training videos when I when I boot up the [Samsung] app,” he said for question 9ai.

Thus, the following quote seems to perfectly define his experience with lifestyle apps:

“I think it's just, like, the the app is adapting to me, and you know, not me to the app,” he said when answering question 6a.

9.6.8. Interview 8

This interviewee also rarely uses his phone, but has used smartwatches in the past, which helped track his statistics during exercise. Moreover, smartwatches provided a new outlook on his physical activity, acting much more like a coach, and not just as a simple device.

“It creates a lot of graphs based on your performances and [...] becomes like a personal trainer who is aware of your physical activity, and is able to advise you on how you should conduct your future physical activity,” he said for question 9ai.

However, other lifestyle apps he has used proved far less successful. Thus, the interviewee largely felt that not much changed when he stopped using them.

“I was feeling like those apps didn't bring any, any tangible benefit to me. I mean, but when I when I stopped [...] using the app, I could go and run same as before. I could go and do my physical training exactly like before,” he said for question 6a.

Moreover, an abundance of notifications impacts the usability of the app. This was also mentioned by a few other interviewees.

“A lot of notifications—like every 20 steps, you got a notification and the vibration from your from your phone,” he said when answering question 6.

This tactic managed to retain the user's attention; however, a barrage of notifications often seems more irritating than beneficial. Nevertheless, while the interviewee was the only participant who was not used to game-like elements in non-game environments, he still welcomed the possibility of gamification, as mentioned earlier regarding the statistical data and graphs provided by one of the lifestyle apps he used.

9.6.9. Interview 9

This interviewee ranked lifestyle apps second in her list of priorities, only beaten by a common social media app. However, while she enjoys the content and values aesthetic design, the water drinking reminder app she used seems to offer only minimal rewards and aesthetics.

“There's nothing, you cannot earn anything. There are no points, et cetera. Well, it gives you some confetti next to congratulations, but no graphics, no,” she said for question 7.

Moreover, just like Interviewee 7, she was also aware of the unconscious effects of marketing. However, she could already see them in the way she engages with products, thus making her more likely to participate in promotional campaigns.

“I'm falling for this marketing campaign and this marketing trick where there is this bar within the app and you can see how much how much money you have to spend and how much is left in order to like, uh, you receive a free product. So yeah, I can be quite obsessive with how much money do I need to spend [...] Yeah, it feels like some sort of race. [...] I just think it's a very good marketing tool and, I hardly know people that don't fall for this,” she said during question 10a.

9.6.10. Interview 10

This interviewee ranks lifestyle apps quite highly, and has gone through a few unique apps that relate to organization in order to establish a healthier life rhythm. Moreover, this interviewee was open to talking about her ADHD. However, she does not seem to be vulnerable to predatory gamification tactics, but rather feels overwhelmed by the nature of the apps, their interface, and the plethora of choices such apps often present users with.

“It could happen that I'm being overwhelmed earlier so that there is too much to do that I forget the reason I get the app,” she said for question 12b.

Moreover, she is the only interviewee who does not seem to mind notifications, since they act as reminders for changing or improving habits. However, if the notification is related to promotional activities, that may have an adverse effect on the interviewee instead.

“So, if the notification is about the app usage, [...] I'm fine with it. If they start notifying me about like this promotion on my phone and I'm like no. Then if it happens too much, I will even stop using the app,” she said during question 10, her answer relating to the abrupt nature of pop-ups.

Thus, lifestyle apps and gamification serve as reminders for many of the interviewees to get back on track regarding their lifestyles, health, and routines. Therefore, lifestyle apps allow users to keep up with their habits.

“I think [gamification] will help me open the app, and when I open the app I'm more likely to do the habits,” she said for question 14b.