Reading quantified: A qualitative study exploring the impact of digital reading trackers on reading intentions and behaviors.

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Abstract

Background: A lot is known about behavior trackers targeted at physical health while behavior trackers aimed at leisure activities and mental aspects have not been investigated yet. Reading is known to improve a person's mental health and findings on reading tracker hold a lot of importance with mental health issues being a pressing issue. **Aim:** This study aims to explore the effects of reading trackers on a person's intention to read and general reading behavior by looking at four central features: Social exchange, goal setting, progress tracking, and visualizations and statistics. **Method:** A qualitative method was chosen for this study, more specifically the conduction of semi-structured interviews. The sample consists of 19 participants who read as a leisure activity and have experiences in the usage of reading trackers, and participants were chosen based on purposive sampling in combination with snowball sampling. The interviews aimed at the participants' general opinions and use of the four central features. **Results:** The results were structured based on the four main features social exchange, goal setting, progress tracking, and visualizations and statistics. All features have shown positive impacts on a person's intention to read through motivation and pressure. However, in cases of too much pressure reading trackers were shown to have negative effects. **Conclusion:** With all four features having mostly positive effects, the overall use of reading trackers has more positive than negative impacts on a person's intention to read which is known to have a positive effect on a person's mental health. **Recommendation:** While more research is needed in this field, reading trackers can be considered leisure-based activities. Instead of focusing on the outcome only by quantifying their users' behaviors, reading trackers should take qualitative aspects into account that increase a person's reading experience further.

Keywords: Reading, Behavior tracker, Reading tracker, Intention, Behavior change

Contents

Introduction

Reading is a central skill that is needed in all parts of life. However, there is more to it than reading for studying and plain information enrichment as it is one of the most popular hobbies worldwide. Not only is it enjoyed as a leisure-time activity, with 96% indicating to read at least one book per year and more than a quarter of people reading more than 20 books annually (Leonhardt, 2023), but it is also proven to be beneficial for one's mental health. According to Billington et al. (2010), there is a significant improvement in a person's mental health when reading regularly. Furthermore, it positively impacts cognitive skills as it exposes individuals to new vocabulary. However, the overall concern of fewer children reading in their free time is voiced.

In today's society, a lot of worth is attached to generating outcomes and reaching goals. Behavior trackers have been designed to influence a person to follow a certain behavior more. The most popular behavior trackers currently are fitness trackers, aimed at physical health. However, there are several more behavior trackers which are aimed at behaviors supporting mental health such as reading trackers which give people the opportunity to manually track their reading behavior and reflect on it. Even though most reading trackers vary in their design, the most popular reading trackers Goodreads (*Goodreads | Meet Your Next Favorite Book*, n.d.) and READO (*READO - All About Books*, n.d.) combine features such as goal setting, social exchange with other users, progress tracking, writing reviews, organization of different lists and more.

As there is currently little research existing on these trackers, this study focuses on exploring reading trackers. They hold the potential to influence behavior that is proven to positively affect mental health and cognitive skills through promoting reading habits and is therefore of high importance for today's society. The combination of different features is aimed at increasing a person's motivation, and especially with people wanting to read more, reading trackers can be a helpful tool (Leonhardt, 2023). With the importance of mental

health problems and the increasing number of digital distractions people face, reading trackers are of significant relevance to influence these factors and help to build healthy habits. To gain more insights into reading trackers and their use, the guiding research question for this exploratory study is as follows: *How does the use of reading tracker apps influence a person's intention to read?*

Reading trackers combine a variety of different features. To get insights into how reading trackers affect the intention of their users to read, four main features are explored in more detail: Social exchange, goal setting, progress tracking, and visualizations and statistics. These four features will be the core of this study to lead to an answer to the overarching research question.

The social environments have a substantial impact on a person's behavior. Central theories by Baumeister and Finkel (2010), Kelman (1974, as mentioned by Scholten, 2021), and Kaptein et al. (2015) introduce how big the influence of a person's surroundings is. The social environment is a key factor to consider when investigating behavior change and should therefore be considered in apps trying to change or influence certain behaviors.

Goal setting is another central feature of reading tracker apps. While there have been findings on the effectiveness of goal setting in multiple studies, Locke and Latham (2012) discussing multiple studies from 20 years of research in this field, certain other effects are playing a role in changing a person's behavior. Therefore, this study explores which effects are central and how these affect the users of reading trackers specifically.

Next to these two features, progress tracking is an important feature that should be considered as it provides the user with immediate feedback that can be used to adjust a certain behavior (Locke & Latham, 2012). However, as there is currently not a lot of scientific research available that is aimed at the effects of progress tracking on a person's behavioral intentions, especially regarding reading and other behavior trackers, this study explores the feature of progress tracking in more detail.

Lastly, visualizations and statistics are tools that are used in reading trackers. While it is closely connected to progress tracking as it visualizes a person's progress, visualizations are not only targeted at that but the reading behavior as a total. Currently, there is not much scientific research on this topic, but existing findings indicate that it can have a motivational effect on people.

This study is aimed at the exploration of the use of reading trackers as well as the effects they have on their users and especially on their intention to read. To answer the leading questions interviews with reading tracker users have been conducted and subsequently analyzed. In the end, practical implications based on the findings of both existing literature and the interviews will be pointed out as well as giving possible directions for future research.

Theoretical Framework

Reading as a leisure activity

Reading books as a leisure time activity is a rising hobby followed by people all over the world. According to Thelwall & Kousha (2016), 75% of American and UK adults read at least one book annually in 2016, and in 2022 96% have indicated to read at least one book per year. Nowadays, there are many different media that people can read, from newspapers, over magazines to books. This research is going to focus on book reading, which, due to new technological trends, can be divided into print, e-books, and audiobooks. While there is no scientific literature discussing whether listening to audiobooks is considered reading, articles state that, according to experts, there is little difference between the two, classifying listening to audiobooks as reading (McShane, 2023). Following book reading in any form outside of studies and jobs is also referred to as pleasure reading (Schwabe et al. 2021). Pleasure reading is mainly a way of entertainment and enjoyment, something that makes people happy by for example being a distraction from reality and gaining new knowledge (Green et al., 2004). While there is a general understanding of what reading means, there is no common definition of reading in literature. Hillesund et al. (2022) suggest that reading is a combination of cognitive processes, physical processes, and personal experience. This means that reading is an active process of forming sense out of a physical object, which is also influenced by a person's social experiences and interactions, as well as physical interaction with the object.

Social activities around reading

While reading is a predominantly individual activity, it may be part of a bigger social activity. For that books are being discussed at any time during the reading process, planned or spontaneously (Thelwall & Kousha, 2016). However, books and reading do

not only spark social interaction, but social interactions might also influence the reading process. A very common type of social interaction around reading is book clubs and reading groups which are often used to discuss books and recommendations with others. These social activities unite social relationships and book-related content, resulting in a social network. In the social network, the concept of homophily is important, which indicates that people prefer to surround themselves with like-minded people who share similar interests and opinions. In book-based social networks people act accordingly by gathering and exchanging recommendations with people who share a similar taste in books. The motivations to join such a social network can vary; however, enjoyment, fun, and entertainment can be considered as factors. In general, the social exchange can be seen as an own activity and experience on its own as it does not solely serve the purpose of improving the reading process (Nakamura, 2013; Thelwall & Kousha, 2016). In essence, reading is not only seen as a solitary activity but oftentimes expands into a social activity by forming social networks.

The space in which people get together to exchange themselves does not necessarily have to be a physical space. Corte (personal communication, November 2023) adds to this that the setting (space) in which social interactions take place plays a significant role in stimulating and fostering (positive) emotions which are central to strengthening ties within a group (Fine and Corte, 2017). However, taking modern developments and the rapid digitalization of our lives into account, the previously disregarded digital space now has the potential to arouse similar emotional effects as the physical space. So, while the idea of book clubs typically involves physical meetings, there are also social networks formed digitally via social media and certain reading tracker apps that serve the same purpose with the same effects.

Reading trackers

Reading trackers as behavior trackers

A form of leisurely behavior trackers that a lot of people are still unfamiliar with are reading trackers. However, nowadays they gain more and more popularity, and millions of people use them to log their reading progress (Statista, 2022). Goodreads, as the biggest reading tracker app, even doubled its number of users within four years to a total of 90 million users in 2019, strongly rising. Reading trackers combine different features that allow their users to engage in the app. Typically, this involves the manual tracking of their reading progress, setting a specific goal for a year and showing whether the user is on track or behind/ahead, writing and seeing reviews from other users, adding friends to follow their progress and ratings, and giving an overview at the end of the year of their reading achievements (*Goodreads | Meet Your Next Favorite Book*, n.d.; *READO - All About Books*, n.d.). Furthermore, the apps give personalized book recommendations based on the user's previous read and rated books, as well as community ratings. Because there are a lot of different apps to track your reading progress, some offer different features with other details than others, e.g., by visualizing a user's progress into graphs (*READO - All About Books*, n.d.; *The StoryGraph*, n.d.). According to the founders of the READO app (*TEAM READO*, n.d.), their goal is to support, motivate, and inspire frequent readers and those who want to become one, through a variety of features. Goodreads (*About Goodreads*, n.d.) also wants to offer its users a tool to organize and socialize their reading journey while exploring more new books. The variety in features and possibilities for personalized experience is what makes these apps so popular amongst their users.

Reading trackers as social platforms

The possibility to exchange your reading progress with friends introduces a social feature to reading trackers like Goodreads. Researchers refer to it as an online social network, such as Nakamura (2013) and Wang et al. (2019). Thelwall and Kousha (2016) go

even further by stating these apps set their focus on social exchange with the aspects of books rather than on book content with the opportunity for social exchange. This shows how central the social aspect and exchange with others is. Instead of the sole reading experience, the social exchange with other users and collecting are put in the focus (Nakamura, 2013). The users are encouraged to engage in this social network and actively join different levels of discussion, making reading trackers comparable to an online book club. Through publicly available data readers can find and attract other readers with similar tastes and opinions (Thelwall & Kousha, 2016). Based on this idea of homophily, their common interests can be central to forming friendships on these apps. Even though the apps are based on products, the users are being turned into creators of the content that are central in the apps, ultimately making it a service-oriented platform for people to build up an egocentric as well as bibliocentric network (Wang et al., 2019) & (Nakamura, 2013). In essence, categorizing reading trackers like Goodreads as social platforms shows the significant role of social interaction as part of the overall experience and might influence one's intention to read.

Behavior change

Central Theories

Behavior change and how to influence it have been central topics in research with different theories that have derived from it. A fundamental theory is the Theory of Planned Behavior (TBH) (Ajzen, 1991). According to this theory, a person's beliefs and behaviors are interconnected, and it is divided into four factors: Attitudes, perceived behavioral control, subjective norm, and intention which have a direct or indirect influence on a person's behavior. Especially the intention plays a central role in performing a certain behavior and has a direct effect on it, while it is being influenced by the other factors. However, it should also be noted that this theory does not consider factors such as people's intentions and emotions which can also affect a person's actual behavior (Mwansa et al., 2024). Taking these factors into account can be helpful to explain certain behaviors to possibly influence

them. For reading trackers to effectively influence a person's reading behavior their positive attitudes and perceived control have to be enhanced, while creating an appropriate social surrounding.

Another central theory to explain behavior change is the Social Cognitive Theory (SCT) by Bandura (2001). It describes how individuals start a new behavior and the continuation of it by taking cognitive, behavioral, and environmental factors into account and their interaction which is referred to as determinism. Cognitive factors include knowledge, expectations, and attitudes which affect a person's perception of certain behaviors. Behavioral factors such as skills, practice, and self-efficacy are both influenced by personal as well as outside factors through e.g., observations of certain behaviors. Environmental factors like social norms, access in community, and influence on others are based on a person's social environment and the behaviors attached to it. For reading trackers specifically, it shows how a user's cognitive, behavioral, and environmental factors such as their beliefs, observed behaviors, and existing norms can be used to determine their behavior.

Other than these two theories, the Self-Determination Theory (SDT) is aimed at an individual's motivation toward a behavior, focusing on the difference between intrinsic and extrinsic motivation (Ryan & Deci, 2000). According to this theory, humans have three basic needs that need to be met: Autonomy, competence, and relatedness. Individuals who are in control of their own lives and behaviors, capable of their activities, and connected to their social environment are more likely to perform a certain behavior out of intrinsic motivation, which leads to more lasting results than extrinsic motivation. Therefore, reading tracker aspects that create intrinsic motivation have a stronger and more lasting effect on their users than aspects that support extrinsic motivation.

Lastly, Kelman (as mentioned by Scholten, 2021) built the Social Influence Theory (SIT) in 1974 to explain how social factors influence a person's intention to perform a certain

behavior. The first is the concept of compliance. It means that a person generally behaves in a certain way that aligns with the beliefs of people around them. Identification refers to a person's social identity and to what extent they can identify themselves with a certain group. Lastly, internalization plays an important role. For the social environment to have an influence on a person's attitude the person needs to accept this influence that is based on their similarities in opinions. This highlights the importance of a person's social environment which reading trackers make us of by adding a central social component to the apps.

This shows that there are different ways and aspects on various levels to consider when focusing on the change of behaviors, attitudes, and intentions. Reading trackers as a type of behavior trackers are designed to change these aspects by combining certain features and aspects that are influential on their users.

Behavior change through technologies

Behavior trackers are an inherent part of today's society that can be used to track a certain behavior. One well-known example of this are fitness trackers which gain more and more popularity nowadays. They are being used to monitor a person's behavior by combining different features for their users including progress tracking, goal setting, data visualization, and social exchange (Lee & Lee, 2018). While fitness trackers are a popular kind of behavior tracker, other behavior trackers are aimed at different kinds of behaviors and attitudes that are collected manually. Examples of this are mood trackers, movie trackers, and reading trackers.

Being able to constantly track one's behavior makes these apps a persuasive technology to change specific attitudes and behaviors. Their data can be used to gain deeper insights into one's behavior to acquire awareness and be able to adapt and change this behavior. This supports the suggestions of the SDT (Ryan & Deci, 2000), as tracking one's progress is targeted at a person's feeling of competence and autonomy, and the TPB (Ajzen,

1991) as the provision of immediate (positive) feedback can influence a person's attitude toward and perceived control of the behavior, stimulating behavior change. Furthermore, the SCT (Bandura, 2001) describes how continuous tracking and the included feedback can improve a person's self-efficacy through their confidence in changing their behavior.

A person's motivation to perform or change a certain behavior can be divided into intrinsic motivation, motivation from within, and extrinsic motivation, motivation from the outside or a person's environment (Baumeister & Finkel, 2010). Even though people know about the positive effects of performing a certain behavior, most people do not actively engage in this, indicating lower intrinsic motivation. Behavior trackers introduce extrinsic motivation to change a certain behavior through the use of different kinds of reminders and rewards, as described in SDT (Ryan & Deci, 2000), which may lead to higher intrinsic motivation once the user starts enjoying the activity itself. Through behavior trackers and added extrinsic motivation people are therefore more likely to change a certain behavior and gain benefits from it.

Behavior trackers are a form of persuasive technology to help their users gain insights and an overview of their behavioral patterns. Through data collection, they provide an extensive overview to their users. Comparable to active progress tracking, this can have a positive impact on a person's confidence to perform a certain behavior, attitude towards the behavior, and perceived behavioral control (TPB) (Ajzen, 1991). Based on these insights they can help individuals to change their attitudes behavior toward a healthier lifestyle, better mental health, or a general desired behavior (Zhu et al. 2017; Lee & Lee, 2018). Thus, these trackers can also be used as preventive measures for illnesses or ill-being through lifestyle-related behavior.

Next to health-related processes, behavior trackers also include a social process. Users can share their progress with other people and directly compare it. Oftentimes, the outcomes of the gathered data are presented in such a way that makes it easy to share with

others e.g., via social media Zhu et al. (2017). This encourages people to share their data with other people online to create a space for competition on the one side and encouragement, support, recommendations, and advice on the other side. This exchange and the competition with others are used as another extrinsic motivator, making them an intervention platform. This is supported by SCT (Bandura, 2001) describing that individuals use observations to learn new behaviors. Furthermore, this adds a social environment that can serve as an environment for support and encouragement, but simultaneously include certain norms that can lead to perceived social pressure on users and stimulate behavior change, as described in SIT (Kelman, as mentioned by Scholten, 2021) and TPB (Ajzen, 1991). While these are indicators of what could influence a person's motivation and success, there is little research on the exact factors that influence it (Asimakopoulus et al., 2017).

Nowadays there is a range of different behavior trackers. While fitness data is often gathered in an automatic and non-invasive way, other behavior trackers exclude the use of additional wearables and require the users to track their behavior manually. The area of application of these trackers can vary vastly, with examples ranging from drinking or hydration trackers like Plant Nanny (App Store, 2019), mood trackers like Daylio (Daylio, n.d.), and reading trackers like Goodreads (*Goodreads | Meet Your Next Favorite Book*, n.d.). While the way of collecting data differs between behavior trackers and divides them into two different groups, automatic vs manual data gathering, the essence is often the same. Through different features like statistics and visualizations behavior can be analyzed and used to either initiate or influence behavior change or gain consciousness about one's behaviors or patterns. While a lot of research has been conducted on the use of physical health-related and outcome-based trackers, research is lacking in the field of leisure-activity trackers such as reading trackers.

Reading Tracker Features on Intention to Read

The influence of different features of behavior trackers in general on a person's intention has not yet been researched in depth. However, there are some insights as to how different strategies can support a person in reaching a certain goal. Based on different reading trackers and the existing research on fitness trackers, four main features have been selected and will be further discussed and researched. Based on two well-known reading tracker apps Goodreads (*Goodreads | Meet Your Next Favorite Book*, n.d.) and READO (*READO - All About Books*, n.d.), and their main features and ways of working, specific features appeared to be most central: Adding friends, writing reviews, rating books, setting goals, progress tracking, visualizations and statistics, and organizing lists. In addition to what is known about fitness trackers and their effects on people's intention to perform a certain behavior, the following features have been selected: (1) Social exchange, (2) Goal setting, (3) Progress overview, and (4) Statistics & visualizations.

Social Exchange

The social component is not only a feature added to these trackers but can rather be seen as the center they are based on. Also in everyday life, social encounters and surroundings have a big influence on people that has been studied intensely, giving insight into how it can be used within reading trackers to influence a reader's intention to read. People tend to care about their self-presentation when in a social environment (Baumeister & Finkel, 2010). This means that people want to present themselves as well as possible when others are around, often connected to certain standards and behaviors. While this can hold negative effects when the desired behavior includes e.g., unhealthy aspects like smoking, it can also positively influence a person. This is the case when people start engaging in behaviors that enhance physical and mental well-being to portray themselves in the best possible way. Subsequently, this indicates that when a person is surrounded by an

environment actively engaging and favoring a certain healthy behavior, it can have positive impacts on the health and lifestyle of this person.

The phenomenon of people acting according to certain standards and norms is not new. Already in 1974, Kelman (as mentioned by Scholten, 2021) built the SIT to explain how social factors influence a person's intention to perform a certain behavior. The added social surroundings in reading tracker apps and the consequent social interactions can put pressure on an individual to behave according to existing norms, such as reading more or different books or creating a supportive environment stimulating behavior change. This social environment in reading trackers can also create a feeling of connectedness and lead to communities, helping individuals to feel involved and increasing their intrinsic motivation, based on the SDT (Ryan & Deci, 2000).

Adding onto this idea, Kaptein et al. (2015) state that "when individuals observe multiple others manifesting the same belief or behavior, they are more likely to believe and behave similarly" (p. 40). A person will start to adapt to their surrounding's behavior, attitudes, and beliefs when being regularly exposed to them. This is in line with the phenomena the SCT (Bandura, 2001) describes, as individuals tend to behave according to the behavior they see in their surroundings and the outcomes that are connected to it.

For reading-based social networks, it could show how important the environment that a person is immersed in within a certain platform is for their intention to read, especially because the members of these groups hold similar opinions and interests. Therefore, the study tries to answer the following question related to social exchange:

RQ1: How does the social exchange within reading trackers influence a person's intention to read?

Goal Setting

Another central component of behavior trackers and reading trackers specifically is the setting of certain goals for one calendar year (*Goodreads | Meet Your Next Favorite*

Book, n.d.; *READO - All About Books*, n.d.). This goal can vary from the number of books read to the number of pages read and more. Setting goals is an important factor as it creates a task to complete and consequently can be used to increase motivation to perform a certain behavior (Gómez-Miñambres, 2012). Based on the SDT (Ryan & Deci, 2000), setting goals within reading tracker apps and the achievement of those has a positive impact on a person's feeling of autonomy and competence, resulting in a possibly increased intrinsic motivation. Furthermore, this process confirms an individual in their beliefs about their abilities and supports the feeling of self-efficacy as described in the SCT (Bandura, 2001).

　　According to Clarke (2023) however, setting goals could have no or even negative impacts on the actual outcome of a behavior. Their blog article "Do Goals Hinder or Support our Progress?" describes how extrinsic motivation through pressure and goals set based on others led to reaching short-term goals but failing to reach long-term ones. When intrinsically motivated on the other hand, setting goals makes it more likely to follow through which can have a positive impact on a person's mental health through positive feelings connected to reaching a goal. Clear (2021) and Rogers et al. (2015) add that a lot of people fail to meet their intentions and expectations due to a lack of planning. Both discuss the importance of having concrete plans including detailed time- and space-planning to the succession of reaching goals: "Simply by writing down a plan that said exactly *when* and *where* they intended to exercise, the participants [...] were much more likely to actually follow through" (Clear, 2021), "Evidence is mounting [...] that prompting people to make concrete and specific plans makes people more likely to act on their good intentions. Planning prompts seem to work because scheduling tasks makes people more likely to carry them out, and also because they help people to recall in the right circumstances and in the right moment that they need to carry out the task" (Rogers et al., 2015 (p. 33).

Next to the high relevance of having a concrete plan to implement certain habits, it shows how the intention to do so is far more important than the motivation and setting broad long-term goals. This supports the ideas described in the TPB (Ajzen, 1991) as the opportunity to set own goals supports a person's perceived behavioral control and with that behavioral change. The opportunity to set more specific goals and plans therefore can amplify this feeling. However, in popular reading trackers, it is not possible to set goals apart from year goals. Therefore, it is important to investigate the reasons and to what extent this holds for readers using reading trackers, which is where the following question regarding goal setting derives from:

RQ2: How does setting specific goals within reading trackers influence a person's intention to read?

Progress tracking

Closely related to goal setting is the tracking of one's progress. The consensus seems to be that progress tracking is a helpful feature for achieving one's goals (Keller & Ercsey, 2023). As stated by Locke and Letham (2012), performance feedback adds an important factor to goal setting itself "because goals regulate performance far better when feedback is present than when it is absent. Feedback allows people to decide if more effort or a different strategy is needed to attain their goal." (p. 7). Reading trackers typically provide their users with a calculation, or feedback, of how far ahead or behind they are in the calculated progress to the goal. This feedback is given to the users immediately and at any time makes the overall process into a tangible overview and can help to support their feelings on competence and capability of a behavior as described in the SDT (Ryan & Deci, 2000).

Monitoring and tracking one's progress to reach a set goal is a crucial part of the process according to Harkin et al. (2016). To add to this, a higher frequency of progress tracking has a positive influence on goal achievement. Moreover, these features can be important in supporting one's motivation and actions to do so. According to the TPB (Ajzen,

1991), the depiction of (positive) progress can improve a person's attitudes towards that behavior. Through this, users can feel more motivated and engaged in continuing the behavior when seeing multiple instances of progress and success. Amabile and Kramer's (2011) progress principle describes how important the visibility of progress is for the way it influences motivation and engagement. Actively tracking one's progress makes it easier for people to keep in mind where they stand and what they have reached so far. Furthermore, it helps people to identify the difference between their current state and the state they aim to reach, alongside self-control to restrict or perform a certain behavior. This aspect helps the users to act and change their behavior and actions which is related to the aspect of self-regulation of the SCT (Bandura, 2001).

On the other side, Harkin et al. (2016) also mention that other studies have found no effect or even negative effects of progress tracking on goal realization, which shows how much the findings differ. Especially for the use of leisure-activity trackers and reading trackers specifically, there has not been research conducted on how progress tracking can affect a person's intention to read. To investigate it, the study aims to answer the following question about progress tracking:

RQ3: How does the active tracking of a person's reading progress influence their intention to read?

Visualizations & Statistics

Lastly, visualizations are central parts of reading trackers (*Goodreads | Meet Your Next Favorite Book*, n.d.; *READO - All About Books*, n.d.). Even though these visualizations are representations of a person's progress, there are still ways to differentiate these two features. While a person's progress aims at the quantified presentation that the person can observe at any point in time visualizations differ. While Goodreads (n.d.) provides its users with summarizing statistics and visualizations once a year after the end of the calendar year, READO (n.d.) makes them more accessible: Statistics are being updated every time there has

been progress, while there are weekly statistics and visualization templates that can easily be shared to social media. This difference between different reading tracker apps leaves the question of how these visuals might influence a person's intention to read.

Comparable to progress tracking, clear visualizations are a tool used to enhance a person's motivation towards continuing the progress to a certain behavior. According to Cheema and Bagchi (2011), visual representations of a person's progress toward reaching a goal can increase their motivation to do so. These findings can be related to multiple theories. First, perceived behavioral control as described in the TPB (Ajzen, 1991) describes how visualizations and statistics of a person's progress make the process tangible and understandable which helps to influence their perceived control of their behavior positively. At the same time, visualizing progress can be seen as having a positive impact on a person's attitude towards the behavior and therefore have a motivating effect. Simultaneously, related to the SDT (Ryan & Deci, 2000) the depiction of process can increase the user's feeling of competence through visualizing their achievements. Lastly, the visualizations and statistics can be seen as environmental influences as described in the SCT (Bandura, 2001) that are aimed at supporting the engagement in a certain behavior.

As can be seen, the principles of progress tracking and the visualization of it are very similar. In reading trackers, however, these are different features, differing between apps. Consequently, the question to investigate statistics and visualizations is formulated as:

RQ4: How do behavior visualizations and statistics within reading trackers influence a person's intention to read?

Conclusion to the Theoretical Framework

Reading is not solely an individual activity but has many ways in which it can be expanded. Reading trackers as a kind of behavioral trackers are generally comparable to fitness trackers which are used by many people. Due to the resemblance in certain features similar effects on their users are expected. However, there are also certain differences

between these two types of apps. While the effects of behavior trackers such as fitness trackers have been researched to a certain extent, not much is known about the effects of the use of reading trackers. With their four main features social exchange, goal setting, progress tracking, and visualizations and statistics they have the potential to influence a person's intention to read positively and motivate them to read more. Still, there are gaps in how those features influence the users and what other effects there possibly are. Based on the aforementioned information and the sub-questions regarding different features, the guiding research question for this study is as follows: *How does the use of reading tracker apps influence a person's intention to read?*

Methodology

Research Design

Based on the theoretical background and the exploratory nature of this study a qualitative research method was chosen. The exact method that was chosen is interviews, more specifically semi-structured interviews. Based on existing literature, semi-structured interviews are best for exploring the topic at hand and reasons behind certain opinions, which this study is aiming at (DiCicco-Bloom & Crabtree, 2006). The interviews are directed at gaining deeper insights as to how the different features of social exchange, goal setting, progress tracking, and statistics and visualizations influence a person's intention to read as well as the reasons behind this. For that the interviews were split into different parts discussing each of the features as well as other features the participants considered influential for their intention to read, giving the participants room to explain their answers in detail. The research project request for this study with the number 240818 has been approved by the responsible ethics committee.

Sample

The sample of this study consisted of 19 participants. There were two criteria that people had to fulfill to be interviewed: (1) reading as a leisure-time activity and (2) the use of a reading tracker app. This ensured the collection of relevant data to answer the research question. It was decided to not focus on one reading tracker app specifically as the study aims at a general understanding of how different features influence a person's intention to read rather than comparing different apps. The inclusion of different reading trackers however helps to understand the different features in more detail since they slightly differ for every app.

All sampling methods used were non-probability sampling. First, convenience sampling was used where possible participants around the researcher were contacted as to whether they are actively using a reading tracker. Then, other participants were contacted

through social media, more specifically Instagram. Furthermore, a story was posted on Instagram within the book community to reach more possible participants. On top of this, the snowball sampling method was used by asking participants for further qualified participants.

Out of all 19 participants, 18 identified as female and one as male. The youngest participant was 18 years old and the oldest participant 51, averaging 26.21 years (SD = 8.09). 16 participants are from Germany, two from the Netherlands, and one from America. Among all 19 participants Goodreads and READO are the most used tracker app as depicted in Table 1, which shows the number of users per app. The average years of usage among the participants was 2.32 years (SD = 1.55). A complete overview of the participants' demographics and reading tracker use can be found in Appendix A.

Table 1

Overview of used reading trackers

App	Users
Goodreads	10
READO	9
StoryGraph	5
LovelyBooks	1
Bookstats	1

Procedure & Instruments

For the interviews, nine participants were contacted personally or via WhatsApp messages, six participants were contacted via Instagram direct message, and four participants replied to the posted story. All participants were informed about the intentions and contents of the study beforehand to one, make an informed decision about the

participation, and two, prepare for the interview by thinking about the different features. Out of the 19 interviews, two were conducted in person and 17 online via the meeting software Microsoft Teams. On average, the interviews lasted 35.8 minutes (SD = 9.03), the shortest conducted interview was 21.8 minutes, and the longest 53.4 minutes long.

Seeing as a substantial part of the participants is German (*n=16*) and participants were contacted within the German book community (*n=10*), it was decided to conduct the interviews in English and German, depending on the participant's nationality. The questions prepared for the German interviews were the same as in the English interviews just translated, to ensure that the essence stays the same. This was supposed to make it easier for participants to express their thoughts and opinions by being able to do this in their native language.

All participants were asked for their verbal consent twice. First, their permission to record the interview was asked and after starting the recording the informed consent was read out for the participants' agreement, making sure they were aware it was possible to stop the interview whenever requested. The interviews were recorded on an iPhone 12 using the "voice memos" application and the interviews conducted online were additionally recorded via the meeting platform Microsoft Teams.

First, participants were asked about their general demographics. Next, participants were questioned about which tracker(s) they were using to get a better understanding of how the different features of reading trackers might influence a person's intention to read. This was not done to compare different trackers but to understand the details and characteristics of the different features and which effect they have. During the interviews, the participants were further asked for their input on the four central features of reading trackers: social exchange, goal setting, progress tracking, statistics, and visualizations, and how they are related to the participant's intention to read while and after using the tracker. For that, main interview questions were formulated for all interviews which can be found in Appendix B.

Based on the answers given by the participants, the researcher came up with follow-up questions to keep the conversation going and gain deeper insights where needed.

At the end of each interview, participants were thanked for their participation and asked whether they had any more questions about the study. Afterward, the recording was stopped, and the participants had the option to request the final thesis once finished.

Analysis

After transcribing the interviews, all personal data were deleted. This included everything that could enclose the identity of the participant, their work, or other personal information to ensure full anonymity. Afterward, all recordings of the interviews were deleted as well, meaning that all personal information was not accessible anymore. For the coding, an inductive method was chosen due to the study's exploratory nature and lack of relevant literature in this field. Three interviews were used for the coding scheme, building the codes off of the data. The codes were then grouped into categories based on the four main features social exchange, goal setting, progress tracking, and statistics and visualizations. The original codebook can be found in Appendix C, which was used for the coding process of the first 25% of the interviews. For the entire coding process, the software program Atlas.ti was used where all the transcripts of the interviews were uploaded to.

To ensure reliability of the used codes, an inter-coder agreement calculation was performed. With this method, another researcher codes a sample of the interviews with the existing code list. In this case, three out of the 19 interviews were coded by another researcher, 16% of all interviews. To calculate the intercoder-reliability Krippendorff's alpha was calculated. The overall agreement lies at 97.3%, indicating a very high agreement between the two coders and therefore higher reliability of the codebook. In total of 95 codes were assigned to quotations, with around 92 codes corresponding and 3 differing.

To gain insights into the categories of codes describing the different features, intercoder-reliability was calculated for the different categories. In general, the values in the

different categories were very high and some categories had values of one, indicating a high to a unanimous agreement between the two coders. A Table with the exact values per category can be found in Appendix D. These high values can be attributed to the straightforwardness of the interview questions as well as the answers given by the participants. Oftentimes, answers were given directly referring to, among other, the motivational effect, pressuring effect of different features, and possible improvements: "Yes, it does motivate me to read more […]." (participant 8); "[…] because they put me more under pressure and gave me a bad feeling when it comes to reading." (participant 15).

Even though the values are high and therefore indicate a high reliability of the codebook, some changes have been made. Due to the high value for the code category Visualizations & Statistics including only one code belonging to this category, Appreciation (V&S), a rather widely defined code is indicated. To specify it more and add more detail to the codebook, the code has been divided into two codes: Enjoyment (V&S) and Helpfulness (V&S). Furthermore, codes have been added that were found relevant during the entire coding process, leading to the addition of the following codes: No effect, external factors. This final codebook can be found in Table 2.

Table 2

Final Codebook

Code Category	Code Name	Definition	Example
General opinions	Positive opinion	Refers to a person liking reading trackers generally or in certain parts. This does not refer to their use of certain functions.	"I would say I have a positive experience with it."
	Negative opinion	Refers to a person disliking reading trackers generally or in certain	"I had a time where I did not have that much time or desire to read

Code Category	Code Name	Definition	Example
		parts. This does not refer to their use of certain functions.	and then it pressured me a lot which is not nice."
	Improvements	Refers to possible improvements that could be made in the apps.	"I think a feature that evaluates it a bit would be cool, how the reading behavior has changed."
Reason for usage	Social environment	Refers to a person using reading trackers because of other people or for the social exchange that is made possible.	"Because other people used it and then I also wanted to see what they are reading."
	Overview	Refers to a person using reading trackers to gain an overview of their reading behavior in form of a summary or reflection.	"Because I wanted to have an overview about what I read and how much I read."
	Goal	Refers to a person using reading trackers to set a certain goal for themselves.	"Generally, I liked the idea of setting a goal for myself and to see whether I could reach it or not."
Social Activities	Adding/ following friends	Refers to a person adding or following other people in the app.	"When I see that people use it as well, I am usually very quick to check out their profile and add them."
	Social exchange	Refers to a person making use of the feature to actively exchange yourself in the app.	"The buddy read function is very nice to read books together and maybe hear other opinions and it is also what I like best about this exchange in the app."
	Comparison	Refers to a person comparing their own reading behavior with other peoples' reading behavior.	"During one time I compared myself to almost everyone that even had a reading goal."
	Inspiration	Refers to a person being influenced through inspiration from other	"I like to look at what other people have and what maybe interests me?

Code Category	Code Name	Definition	Example
		people in their reading behavior (e.g., for books).	There you often discover new stuff that you did not expect before."
	Motivation (social)	Refers to a person feeling positively motivated to read more based on one aspect of or the social feature as a total.	"When I see that I have a book that I cannot motivate myself to read but someone reads it in a buddy read then it can be a great motivation for me."
	Pressure (social)	Refers to a person feeling negatively pressured to read more based on one aspect of or the social feature as a total.	"Sometimes when i put too much pressure on myself because I saw that others read so much."
Goal setting	Realistic goal	Refers to a person setting a lower/ realistic goal for themselves in the app.	"I know for myself that I am rather above than under my goal, that is why I set a lower goal and adjust it maybe in the middle of the year."
	Optimistic goal	Refers to a person setting a higher goal for themselves e.g., as incentive.	"Then it would be realistic for me to read 20 books again, so I set my goal to 24 this year."
	Motivation (goal)	Refers to a person feeling positively motivated to read more based on one aspect of or the goal setting feature as a total.	"The goal is like an interim reward; it does motivate me in some way."
	Pressure (goal)	Refers to a person feeling negatively pressured to read more based on one aspect of or the goal setting feature as a total.	"Sometimes I realize that I get too obsessed with this reading goal, and I start to not enjoy my books anymore because I have to read more"
Progress tracking	Motivation (progress)	Refers to a person feeling positively motivated to read more based on one aspect of or the progress tracking feature as a total.	"Being ahead actually motivates me a lot to read more because I see how far ahead I am and it would be cool if I could be further ahead."

Code Category	Code Name	Definition	Example
	Pressure (progress)	Refers to a person feeling negatively pressured to read more based on one aspect of or the progress tracking feature as a total.	"When I am behind I a lot of time think oh sh*t, you really have to read more."
	Choice of book	Refers to a person being influenced in their choice of book because of their progress in the app.	"I had time where I was focused on it so much that I chose a thinner book even though I was more in the mood for a thicker book."
Streak	Motivation (streak)	Refers to a person feeling positively motivated to read more based on their streak in the app.	"It sometimes really motivated me, when I was not in the mood, to see: Oh hey, I have my reading streak here."
	Pressure (streak)	Refers to a person feeling negatively pressured to read more based on their streak in the app.	"I stopped because it put too much pressure on me."
Visualizations & statistics	Enjoyment v&s	Refers to a person generally liking the look and/ or function of the visualizations and statistics in the app.	"I especially like these overviews ..."
	Helpfulness v&s	Refers to a person considering the visualizations and the statistics in the app as helpful for either their reading behavior or other parts in their life.	"It definitely motivates me. I think it is also nice to see at the end of the year how much time you spent reading."
Other outcomes	Reading less	Refers to the outcome of a person to eventually end up reading less.	"Partially, when I put too much pressure on myself, I noticed that I just did not want to anymore."
	No effect	Refers to a function or feature having no effect on a person's motivation or intention to read.	"But it does not really influence me, I won't start reading more."

Code Category	Code Name	Definition	Example
	External factors	Refers to a person being influenced in their reading behaviors by factors from their personal lives outside of reading trackers.	"I would not relate that to reading trackers but rather to Instagram."

Due to the extraordinarily high values for the intercoder agreement, it was decided to perform another reliability test. For this, another three interviews were coded by a different coder. The interviews chosen were different ones than before and the ones including the most coded quotations. The outcomes of this led to a general agreement of 87.3%. This time, a total of 26 codes were assigned to 120 quotations, out of which around 105 were similar and 15 assigned differently. All categories have a value higher than .8, an overview per category can be found in Table 3, which shows that the codebook is well-defined and reliable in its use.

Table 3

Krippendorff's Alpha Value for Inter-Coder Agreement Round Two

Concept	Alpha value
General opinions	0.974
Reason for usage	0.93
Social Activities	0.883
Goal setting	0.937
Progress tracking	0.931
Streak	1
Visualizations & statistics	0.821
Other outcomes	0.906
Average	0.923

Results

The following section will present the results from the interviews based on the assigned codes. It is structured in the same way the interviews with the participants have been, as certain topics might be based on other topics and the way it has been shown in the codebook. First, the general opinions about reading trackers will be presented, followed by the reasons for usage, the four central features of social exchange, goal setting, progress tracking, and visualizations and statistics, and lastly other outcomes.

General Opinions

To get an answer to the overarching research question, participants have been asked about their general experiences with reading trackers, as well as possible improvements they can think of to increase their experiences with these tracking apps after every feature.

The overall experience with reading trackers was mostly positive. Participants who overall liked the use of reading trackers described these experiences as "I would say positive experiences. I just have a better overview of the things that I am reading or that I have unread on my shelves. [...] I did not experience anything bad about reading trackers yet." (participant 4). Features the participants mentioned to appreciate most are the ease of use, helpfulness of the app for their reading behavior through added benefits, and possibilities given within the apps.

Negative opinions about reading trackers were mostly connected to specific apps or aspects within the apps. Participants voiced their dislike about usability problems, complex features, and an unappealing design, like participant 6: "In general I think Goodreads is very open for improvement. I actually think the app is [bad] visually and the way it is structured and also regarding the general design and ease of use I think you can get a lot out of it and change a lot." In some cases, this led to participants switching to different apps, in other cases the participants kept on using the app due to other reasons such as their social connections on the apps as well as a lack of alternatives. Next to that, some participants

mentioned that on top of the good features that a reading tracker combines, there is still a bad side to it if you get too fixated on it, which leads to the usage having more negative effects on them as a total.

After every feature, the participants were asked for improvements that they would like to see in the apps. Even though the code "Improvements" was used relatively often (58 times), most of the improvements were mentioned to be appreciated add-ons rather than actual necessities which were often targeted at receiving additional or expanding existing features to make the app more engaging. Examples of content that participants would like to add are awards, options for personalization, and more details. Some improvements were also targeted at increasing the usability and general design of the app: "I think also for me it is not about that this app has to get more features, but I think a few features could be taken out so that everything is a bit clearer and designed a bit nicer." (participant 6).

Reason for Usage

The participants were asked to indicate the reason why they started using reading trackers and why they still use them nowadays. The different answers were grouped into the categories social environment, goal, and overview, of which the distribution of the number of times the according codes were used can be found in Table 4.

Table 4

Frequency of Codes for Reason for Usage

Code	Frequency
Social environment	17
Goal	8
Overview	35

Most of the participants do not use the app because of one specific reason but often the combination of multiple reasons. However, most participants mentioned using reading trackers to get an overview. This includes seeing how much they read throughout the year, to organize their books, and to gain insights into their reading behavior. Other participants mentioned that they use the app due to their personal environment, meaning that they knew people using the app or heard about it from other people. Lastly, it was also mentioned that a reason to use the app was to be able to set a reading challenge for themselves.

Social Activities

RQ1 was aimed at the investigation of the social feature within reading tracker apps and their effect on a person's intention to read. To answer this question, participants have been asked questions such as "To what extent do you make use of the social feature?", "Did you recognize the social feature to have positive effects on your motivation and intention to read?", and "Did you recognize the social feature to have negative effects on your motivation and intention to read?". The motivational effect of the social feature can be seen in Table 5, which shows how often participants have referred to feeling motivated and pressured by aspects of the social feature.

Table 5

Frequency of Codes for Motivation and Pressure in the Category Social Activities

Code	Frequency
Motivation (social)	18
Pressure (social)	14

Almost all participants mentioned following or connecting with friends in the apps. Most of this happens on a smaller scale, meaning that people usually add people they know personally, or people that they know have a similar taste in books such as participant 4: "I

think I have around four or five friends there, these are my closer friends where I know they read as well. I think it is always pretty interesting to see what they are reading, but otherwise, people that I do not know: not at all. Only the ones that I also know personally.".

Not all of the participants use the possibility to exchange themselves with others in the app. However, it was mentioned by some participants that they see the social exchange as a central part of the reading experience, such as participant 9: "For me, reading is also a lot about the exchange afterward because I really enjoy talking about books." At the same time, most participants said they do not actively use the social feature within the app and do not see the need for it, as this exchange is moved to outside the app: "I compensate the social contacts elsewhere […]. The ones I am also friends with are good friends of mine, with them I just text on WhatsApp and then rather exchange there." (participant 4).

The most used forms of social exchange in the app are joining buddy reads and publishing reviews. According to participants, buddy reads are an easy and fun way to get into contact with other people in the app for books that they are interested in: "I thought it was a cool thing to meet different people, maybe also through this, that you are reading the same book because I think it is cool when it is an open buddy read, that you can meet new people, exchange yourself about books, maybe you build friendships based on this and so on, I think that is really nice and I really enjoy doing it." (participant 15). However, many participants mentioned not limiting themselves to the social exchange within the app.

Most of the participants also indicated that they like to get inspiration through other people in the app, e.g., to find new books: "[…], especially because we oftentimes track the books we own and then I look at: What do I want to read from this? What can I maybe also borrow?". However, some participants also mention that for this it is important for them to share a similar taste: […] only when I think they have a similar taste, but I let myself be influenced relatively quickly. I bought a lot of books where I think, okay, I only bought them because someone else said it is very good." (participant 6).

Only a few participants indicated that they compared themselves to other users in the app. Examples of this were mentioned by participant 2: "At times I compared myself to basically everyone that even had a reading goal. [And then I] thought, okay, this person is reading 278 this year. Why can I not do that?". While participants mentioned comparing themselves in both quantitative and qualitative ways, quantitative comparisons were mentioned more often. However, most of the participants either do not compare themselves with other people in the app or try not to.

Most participants who noticed an effect on their intention to read categorized it as motivational. Oftentimes, participants notice certain parts of the feature to influence them in this regard. Some state that the exchange in the app motivates them to keep reading, read more, or in general has positive effects on their intention to read through the exchange itself or the ability of other people to see one's progress: "When I see I have a book that I cannot motivate myself to read but someone is reading it in a buddy read, it can be a great motivation for me for example." (participant 2). Other features that were mentioned to have a positive effect are inspiration and other peoples' reading behavior: "Yes sometimes it motivates me that […] I see that others were reading and then I am like: Okay then I put my phone away and read instead.". What was mentioned to motivate people the most in their intention to read is the buddy read function which facilitates active social exchange.

On the other hand, some participants also mentioned that the social exchange gives them a feeling of pressure rather than motivation to read more. Again, most participants felt pressured due to specific parts of the social feature. Examples of the negative effect of the social exchange feature on their intention to read as well as reading behavior can be seen with the following examples: "[…] that I felt the pressure that I have to do it because […] I also saw that my friends were reading in the time where I did not read or just read one chapter multiple books." (participant 3), "I am always afraid that people judge me or

something for the books that I read." (participant 12). Participants mentioned that the social comparison had the most effect on their pressure to read.

Goal Setting

The next research question was targeted at the feature of setting goals in reading tracker apps. For this feature, participants have been asked questions regarding their ways and reasons for their goals and to what extent they believe this feature is helpful for their intention to read. Table 6 shows how often the codes for a motivational and pressuring effect regarding the goal-setting feature were applied. This shows, that among the 19 participants, the feature was more often mentioned to motivate than pressure the participants.

Table 6

Frequency of Codes for Motivation and Pressure in the Category Goal Setting

Code	Frequency
Motivation (goal)	35
Pressure (goal)	13

The goals that the participants set were both low/ realistic and optimistic/ motivational goals. However, most participants mentioned to rather set a lower goal for themselves. Reasons for this are the unimportance of the feature for some participants, the lack of extra effort, or the routine of a specific goal. Furthermore, it was mentioned that the participants are open to adapting the goal if they see it is too low/ high. Participant 2 mentions the following in this context: "I know I can read more and usually I do read more [...] but the 100 is now my standard goal. [...] I just take something where I know, okay, I can easily reach that without problems because otherwise it is too much pressure for me because then I am only reading for this goal, and I do not want that.".

The reasons mentioned for setting higher goals were to add motivating factors and create something to achieve. Oftentimes participants considered their last years and what they would want to reach in the upcoming year: "Then I think, what is realistic? But what would I like to do? Then I try to find a middle ground." (Participant 11).

As mentioned above already, the code for motivation related to setting a goal was applied more often than the code for pressure related to goal setting. Participants stated that the goal helps them to keep their focus on reading and choose reading over other activities by reminding them: "In general, I would say it motivates me positively because then you simply have something that you are working towards, a goal." (participant 14).

On the other hand, participants have mentioned feeling pressured by the goal setting. It was stated to make participants feel like a chore to reach the goal when they did not want to read: "Exactly, it just pressures me, I think that is a shame because reading should not be stressful, it should be fun." (participant 7).

Progress Tracking

Regarding the progress tracking, RQ3 was investigated by asking participants questions such as "How often do you track your progress?", "How does it influence your intention to read?", and "Does your progress affect the books you choose to read?". When comparing the number of times the code for motivation through progress tracking to pressure, it can be seen that a motivational effect was mentioned more often. Table 7 shows the exact numbers of how often each of the codes were assigned within the 19 interviews.

Table 7

Frequency of Codes for Motivation and Pressure in the Category Progress Tracking

Code	Frequency
Motivation (progress)	37
Pressure (progress)	19

"I think that is what motivates me most in this app, when the bar keeps going and keeps going, I think that is great. [...] I am also really proud of myself then. [...] And it also motivates me, when I update for example, and it says 87 percent or so. Most of the time I just finish the rest." (participant 15). Many of the participants have a similar opinion about the progress tracking feature and noticed it to have positive effects on their intention to read in one way or another. Participants mentioned that they get motivated when they are behind their calculated schedule in reaching their goal and partially motivated when they are ahead of this schedule to keep going and maybe surpass their goal. It was also said that the progress tracking helps participants to keep in mind where they are at combined with visualizing it, as mentioned, among others, by participant 8: "I am a very visual person. That is why I can grasp it better when I always see it. The good thing is also that it always shows how many books you are behind, then I do not have to calculate myself.".

On the other hand, participants mentioned feeling pressured by the progress tracking feature. This was most often mentioned in the context of being behind in one's schedule and therefore feeling the need to read more, as mentioned by participants 8: "When I am lagging in my goal it does not feel good, you do feel a bit of time pressure I have to admit.".

When asked if their progress influences their choice of books, most participants mentioned that they noticed that they have done it at some point or still do it. It was mentioned that the participants tend to choose a thinner book or book they can read faster when they notice to be behind in their schedule: "Because [...] they do not differentiate between a thick book and a thin book. So sometimes I pick the thinner ones to get more progress." (participant 16). Following the same principle, participants stated that they would choose thinner books at the end of the year if they saw that they were close to reaching their goal. Furthermore, it was mentioned that some participants are more open to starting a longer book when they see that they are ahead in their scheduled progress. Some

participants have also indicated that the social comparison influences the books they choose, e.g., in genre: "On the other side it also motivated me to […] read more classic books […]. I think those are books that I would not have chosen otherwise." (participant 9).

Streak

Streaks have been mentioned by some participants to have an effect on them and can be connected to the feature of progress tracking. They tell their users for how many days in a row they have tracked their progress. Not all participants made use of this function, but the ones that do have mentioned motivational effects more often than pressuring effects as can be seen in Table 8.

Table 8

Frequency of Codes for Motivation and Pressure in the Category Streak

Code	Frequency
Motivation (Streak)	12
Pressure (Streak)	6

Participants have mentioned that the streak function motivates them to pick up a book and read every day to not lose it. Furthermore, it sometimes helped them choose between different leisure time activities. For example, participant 2 noted that "It sometimes motivated me a lot, for example when I did not feel like reading, that I saw: Hey, I have my reading streak here. Come on, read at least one chapter!".

At the same time, participants have noted that the streak function puts them under pressure which makes them enjoy reading less: "And that is why I do not do these things that are daily anymore because they really put more pressure on me and then gave me a bad feeling about reading." (participant 15). Multiple participants have mentioned that they stopped using the streak function when they lost their streak.

Visualizations & Statistics

For the visualizations and statistics in reading tracker apps, the participants have been asked to what extent they enjoy them and whether they consider them helpful to explore RQ4. Almost every participant has mentioned that they enjoy the visualizations and statistics in the apps and like looking at them occasionally. Almost all participants did not notice motivating or pressuring effects of visualizations but rather enjoyment and helpfulness. Most of the participants consider the visualizations and statistics helpful on top of their enjoyment. A point that was mentioned often is that they help them to reflect on their reading behavior and possibly adapt it: "I engage more with the books that I read, through the tracking in general but also the type of visualization, also to think outside the box more and not always stick with young adult and fantasy. […] I think it is also nice to see at the end of the year how much time you spent reading. What is a big topic for me is how much screen time I have or how much I am on my phone or laptop. […] It is nice to see, then you can compare it better" (participant 9). Furthermore, participants said to use it to export the outcomes for other purposes and motivate them to read in certain ways: "It is helpful, as I said because of my book journal and so on, it is very helpful because you see everything at a glance." (participant 15).

Other Outcomes

Next to effects that made the participants want to read more, some participants have also stated to read less because of the use of a reading tracker. Participants mentioned that it originated mostly through the pressure from different functions which led to them not wanting to read and ultimately reading less: "Because I put so much pressure on myself when I saw others reading a lot, I always had this "I-have-to-do-it-now-feeling" when I wanted to read and that made me read less because I was always thinking: I have to, and then I just did not want to." (participant 2).

Apart from reading trackers having positive and negative effects on a person's intention to read, almost all participants mentioned that some functions did not influence them. This was mostly connected to functions they either did not actively use, or which were not important to them: "I have to say the app itself I think I did not notice for myself. It is more because I really like the book and then I want to read, but not because of the app" (participant 18). Apart from visualizations and statistics not affecting the participants' intention to read, the features to cause it differed.

Lastly, it could be observed that other factors influence a person's intention to read rather than the reading tracker app itself. What was mentioned most by participants are social media, other personal exchange outside of the app, and personal matters "I think it is more because of Instagram and such, if you see something there that you are more likely to be influenced." (participant 18). These factors were either said to have a stronger effect than reading trackers or were replacing certain features in the apps.

Discussion

This study is aimed at investigating the effect that the use of reading trackers has on a person's intention to read. To answer this question, the sub-questions formulated in section 2.5 regarding the four main features of social exchange, goal setting, progress tracking, and visualizations and statistics will be discussed subsequently and taken into account to answer the overall research question. In this section, the main results from this study, as well as the findings from literature and theories will be combined to find an overarching answer to the research question.

Reading trackers are a way for people to get an overview of their reading behavior, connect and exchange themselves with other people and work towards a certain, self-set, goal. Results show that the overall use of reading trackers has positive effects on a person's intention to read.

Social Exchange

Regarding the social exchange feature the leading research question was as follows: *How does the social exchange within reading trackers influence a person's intention to read?* Based on the outcomes of the conducted interviews it was shown that the social exchange feature may have a positive influence on a person's intention to read.

The social exchange in reading tracker apps consists of adding friends, sharing reviews, and joining buddy reads and is seen as a central part of the apps as found in this study. This is in line with prior research stating that reading trackers are book-based social networks (Nakamura, 2013; Wang et al., 2019). At the same time, it should be noted that this social exchange is not confined to reading tracker apps but might also take place outside of this social space due to personal preference or restriction within the apps, as was found during this study.

By adding friends in reading tracker apps users are faced with the reading behavior of their friends. Findings show that exposure to this content positively influences a person's

intention to read. This is explained by Bandura's (2001) SCT, as the repeated exposure of a certain behavior in a person's surroundings makes it more likely for the person to behave similarly.

Reading trackers create a social environment where people share a similar hobby and leisure time activity: reading. Baumeister and Finkel (2010) describe the importance of standards and certain behaviors in such a social environment and the tendency of people to be aware of their self -presentation. Based on their shared interests and hobbies, and for certain books even opinions, the users form a strong social environment with the desired behavior to read. This explains behaviors found in this study in which social comparison and the behavior of other people in the social surroundings are of positive influence on the reading intentions, both in terms of the amount and the genre of books to read. Moreover, the feeling of contest evolved through this social comparison and influenced both the motivation and pressure to read more. At the same time, for this influence to be apparent it was shown that the requirement of similar interests and opinions must be met, as supported by the concept of homophily (Thelwall & Kousha, 2016). Building onto this, the findings from this research are supported by the SDT which explains how the feeling of community and connectedness with other people stimulates higher intrinsic motivation to perform this behavior (Ryan & Deci). Therefore, social surroundings, especially of like-minded individuals, on reading trackers have a positive influence on the intention, both intrinsically and extrinsically.

The same phenomenon of users being influenced by their social surroundings on reading tracker apps connects to some extent to Kelman's (1974, as mentioned by Scholten, 2021) SIT. As the findings in this study propose, the exchange with others in reading tracker apps includes certain norms and beliefs revolving around reading, resulting in a higher motivation to read. Furthermore, the concept of identity can be applied to the formation of buddy reads and how the feeling of identity has a positive effect on the intention to read. The

concept of internalization refers to the importance of individuals recognizing and accepting the influence that their social environment has on them. Based on the results, this process is crucial to see a change in the intention as an individual can actively choose against it. By doing this, the ability of their social surroundings to influence them into acting according to certain behaviors is stopped.

Readers using reading tracker apps are surrounded by other people who mostly follow the same beliefs and behave the same way as it is also framed by the apps. In line with existing research by Kaptein et al. (2015) stating that observing a certain behavior regularly tends to let individuals behave in similar ways, results from the interviews suggest that the more the reading behavior of other people was displayed, the more positive effects it had on the actual intention to read. Users of reading trackers with more active surroundings are therefore more likely influenced by others to read more than users with no social or less active surroundings.

Overall, the importance of the social environment on a person's intention to read is shown. By being surrounded by people who engage in similar hobbies and share the same opinions, both the interviews and literature have shown how this can influence a person positively to engage more in a certain behavior. However, it is important to note that the user is capable to stop or restrict this influence by adapting the use of the feature to their needs.

Goal Setting

Another central feature is goal setting which is aimed at answering the following research question: *How does setting specific goals within reading trackers influence a person's intention to read?* Overall, the interviews showed that the general use of this feature influences a person's intention to read positively.

The reasons for this effect to be positive are the ability to work towards something, create reminders, and the existence of a challenge. This supports findings by Gómez-Miñambres (2012) stating that these aspects have a positive and motivational effect on

individuals. This is further explained by the SDT, as the setting of goals increases a person's intrinsic motivation by strengthening a person's feeling of autonomy and competence, as well as confidence and self-efficacy by validating a person's feeling about their actions and abilities as explained in the SCT (Ryan & Deci, 2000; Bandura, 2001).

In contrast to this, the presented findings go against statements of Clarke (2023) indicating that goals without clear planning have negative effects or no effects as current reading trackers do not have the option to plan goals in more detail. The same applies to the achievability of goals, as high and planned out goals lead to higher success in reaching them (Locke and Latham, 2012). However, in this study, neither of these aspects showed to harm the intention to read or reachability of goals but the opposite was shown as more realistic goals seemed to have a bigger motivational effect while high goals could lead to feelings of pressure which is supported by research (Yadusky-Holahan & Holahan, 1983). Reasons for this are that reading is seen as a leisure time activity in which joy is a primary driver, meaning that high goals and detailed planning are not necessary and instead shift the focus onto the outcome.

Even though existing literature suggests that goal setting, the way it is possible in reading tracker apps, has no or negative effects, the interviews showed different results. Overall, this feature was found to have positive effects on the intention to read due to the enjoyment and open-endedness of the activity as well as the perceived helpfulness of the feature.

Progress Tracking

Closely connected to goal setting is the feature of progress tracking which was investigated following the research question *How does the active tracking of a person's reading progress influence their intention to read?* Comparable to the other two features, the results of the interviews suggest progress tracking has a positive influence on the intention to read.

The feature of progress tracking was perceived to be a helpful tool, as also mentioned in literature by e.g., Keller and Ercsey (2023) and Amabile and Kramer (2011): progress overviews make it tangible, resulting in increased motivation to pick up a book or keep reading. Findings of the positive effects of progress trackers are also explained by the SDT as the tangibility of the depicted progress strengthens a person's feeling of competence and capability (Ryan & Deci, 2000). This shows how not only the intention in terms of motivation is being influenced but also the engagement in this behavior. Harkin et al. (2016) add that progress tracking is an important factor in goal-reaching, and it is interesting to see that this aspect supports the findings of active progress tracking and the reaching of set goals.

Results from the interviews show that the calculated progress was perceived as most helpful and positively influential on the intention through both motivation and pressure. The phenomenon of the participants being influenced in their intention to read by the calculated schedule is also supported by Locke and Letham (2012): Getting immediate feedback on their progress gives the users the ability to adapt their behavior and influence the progress. Based on the SCT this feedback increases a person's feeling of self-control and the ability to react to this with a certain behavior, which is in line with the findings from the interviews (Bandura, 2001). Especially positive feedback improves a person's attitudes toward the behavior, instigating behavior change, as supported by the TPB by Ajzen (1991). This indicates that users who track their progress more actively get influenced more positively in their intentions to read and behave accordingly.

The streak function is a tool in reading tracker apps that indicates progress by telling the users how many days they have read in a row. Results from the interviews show that this part of the feature has an overall positive impact on the intention to read to keep the streak going. Even though there has not been a lot of research conducted in this area of manipulating a person's intention and gamification of tracking apps, research supports these

findings as it has shown to have positive effects on a person's motivation as well as attention to their goal (Duy & Hiroyuki, 2017). Furthermore, "Incorporating gamification elements like earning badges, achieving milestones, and monitoring reading streaks drives increased reading motivation and heightened engagement" (The Beanstack Team, 2024). However, at the same time, it is interesting to see that results show that this part of the feature loses its effectiveness once the streak is lost. Possible reasons could be again that reading is seen as a leisure time activity, mostly done for relaxation and enjoyment, while this feature requires more regular effort to start it.

The progress tracking feature was indicated to have the strongest influence on a person's intention to read. Active progress tracking and feedback availability are important factors to consider that can positively influence a person's reading intention and behavior. It helps the users to make their progress tangible and be able to adapt their behavior accordingly. The streak feature, as part of the overall progress tracking, amplifies this influence while actively following it.

Visualizations and Statistics

For the last of the four main features visualizations and statistics the following research question was formulated and investigated: *How do behavior visualizations and statistics within reading trackers influence a person's intention to read?* Other than the previous features, the interviews showed that visualizations did not affect a person's intention to read. Instead, the findings indicate that this feature is used due to enjoyment and helpfulness.

According to central theories such as the TPB and SDT, visualizations and statistics in reading tracker apps are a way to influence the users' intention and behavior positively by increasing their perceived control and feeling of competence as well as positively influencing their attitudes towards reading (Ajzen, 1991; Ryan & Deci, 2000). Other research by Cheema

& Bagchi (2011) highlights this by stating that this has a direct influence on a person's motivation. However, this is not supported by the results found through the interviews.

Findings show that this feature is appreciated and considered helpful to get an overview or share the illustrations further, while it does not influence the intention to read in any way. The increased enjoyment and engagement that was found is supported by the SCT, as the visualizations are an environmental influence supporting these effects (Bandura, 2001). The lack of effects on a person's intention to read can be explained by visualizations and statistics being a reflection of the other features that influence the intention to read positively. Therefore, this feature does not add new content but rather simplifies the access to it. It should be noted however that the enjoyment of this feature leads to more engagement of users with the app and that the increased activity and involvement with it amplifies the influences of the other features.

In general, the feature of visualizations and statistics in reading tracker apps is enjoyed but has no impact on a person's intention to read on its own. It is important to note that the availability of visualizations and statistics varies between different apps and therefore the impacts on a person's reading intention differ as well.

Negative Effects

Even though the general findings of this study show positive influences connected to reading tracker apps, there have also been findings of them having negative effects and therefore go against suggestions from research as discussed above. Findings from the interviews show that this is not connected to specific features but that an extensive amount of pressure on a person has a negative influence on their intention to read rather than a positive one. These findings can be explained by the SDT as intrinsic motivation is influenced by enjoyment of an activity or behavior and plays a central role in a person's engagement. The aspect of extensive extrinsic pressure can interfere with the intrinsic motivation of a person, restraining their feeling of enjoyment and therefore their

engagement, as is supported by the general findings from this study (Ryan & Deci, 2000). Furthermore, Csikszentmihalyi (1990) describes in aspects of his Flow Theory how for a person to enjoy an activity or behavior a certain balance of skill and challenge needs to be provided, with extensive pressure disrupting this balance and leading to less enjoyment and ultimately engagement.

Therefore, for a reading tracker to have a positive influence on a person's intention to read it is important to balance the effects of motivation and pressure, as extensive pressure can lead to negative effects. As reading is seen as a leisure-time activity the focus should lay on intrinsic motivation rather than pressure through extrinsic aspects.

Limitations of the Study

The execution of this research study includes several limitations that have to be noted and addressed as they could influence its reliability. First of all, it has to be mentioned the sample was unrepresentative of the population. Through the use of snowball sampling and contacting participants in book-centered communities on social media, many participants read for a considerable part of their free time. This means that they are already intrinsically motivated to read which has a possible influence on the way reading trackers can affect this behavior positively, as the effects might be restricted. There might be different outcomes for people who barely or do not read in their free time

Another point to consider is the lack of existing research and literature regarding this topic in some parts. Therefore, sources from comparable studies in other fields had to be taken into account as well as some non-scientific sources. Especially the non-scientific source might affect the reliability of the theoretical framework this study is based on.

Next to this, this study focuses on the effect of reading trackers without taking into account other effects that might influence a person's attention to read or have an influence on it, such as social media. It cannot be ruled out that these outside influences altered the findings or replaced them in any way.

Another point is that this study is based on theories and literature regarding behavior change rather than the intention to perform a behavior. This was decided as it was hard for participants to reflect on their actual behavior rather than their intentions. Therefore, the theoretical background might be undescriptive of the actual study as there might be differences in how reading trackers affect a person's actual behavior beyond their intentions to perform it.

Lastly, the findings have been generalized. A positive effect on a person's intention to read was considered any effect that made the participant want to read more, both motivational and pressuring. However, both can have different effects on a person's emotions towards the behavior which could influence their behavior. Therefore, it cannot clearly be stated how pressure influences a person's intention to read in the long term, as these factors have not been defined to a sufficient extent. For further research, it is advised to consider the difference between these two effects and how they can influence a person's behavior.

Implications

This research showed that behavior trackers cannot only influence a person's behavior that is outcome-based but also leisure-based behavior. Reading trackers can be used to improve a person's motivation and intention to read more. However, features that put too much pressure on their users and that way take the fun away can harm a person's intention to read. Therefore, when developing a behavior tracker to influence a person's behavior developers should know which kind of behavior they try to influence, outcome-based behavior or leisure-based behavior, and adapt their features accordingly. Behavior-tracking apps as a whole should be aware of the possible influence certain features can have on their users. Especially reading trackers have been shown to impact their users positively through the different features. However, these features are built to quantify this behavior. While this can be interesting for the users, reading trackers should not neglect the qualitative

aspects that the users care about. That way, reading trackers can improve the user experience of their apps while enhancing their users' reading behavior in a way that amplifies their enjoyment without taking parts of that joy away through pressure.

By focusing on implementing features like qualitative goals and more room for social exchange, the users can take their reading experience a step further and create a new way of motivation – to read more and differently for their good rather than for others. Implementing factors that increase a person's intrinsic motivation more than extrinsic motivation can help people to appropriate certain behaviors not to reach a certain goal but for their own enjoyment and mental health. By developing more trackers that focus and take into account behaviors like this, the importance of mental health and leisure time can be portrayed to the public. This research serves the purpose of filling a research gap regarding leisure-behavior-based trackers and especially reading trackers. To gain more insights and be able to structure these apps accordingly, more research is needed.

Recommendations for Future Research

A lot of research has been conducted on the topic of fitness trackers. Yet, research regarding behavior trackers that are not outcome-oriented is lacking. Different ways can be taken to continue research in this field.

First, this study was conducted including participants with a high intrinsic motivation to read. However, to research the positive and negative effects reading tracker apps have on a person's intention to read and actual behavior, research should focus on people who lack this motivation and require this extra motivation, rather than only enjoying the experiences connected to the app.

Next to this, not all features of reading trackers have outcomes that are explained in literature. By researching these features in more detail and understanding the effects better, features can be adapted to people's needs to optimize them and reach lasting behavior change. At the same time, not a lot is known about the bad effects of behavior trackers.

Feelings like pressure have not been researched enough to be able to take into account the design of these trackers. However, investigating it is a central point to understanding the effects the apps have and how to improve them.

Furthermore, research about trackers has been focused on the physical aspect of health. Even though many more trackers exist that track behavior that is not outcome-oriented, research is falling behind. The next steps could be to further investigate the behaviors and how to influence them, such as reading. Building onto it, research can use existing knowledge from fitness trackers to study the effects of enjoyment- and leisure-based behavior trackers, reading trackers being one example. This can help to shed light on mental health aspects as well as how to be able to positively influence behavior to increase it. Especially the use of reading tackers by people who do not regularly can be researched to improve their mental health and cognitive skills.

In addition to this, gamification aspects in different contexts have been researched. Going further, research could focus on how gamification aspects can on the one side increase a person's engagement in behavior trackers and on the other side the effectiveness of it.

Lastly, another aspect that can be helpful to study is the difference between motivation and pressure and how this affects a person's behavior in the short and long run. With pressure being an effect of trackers, this could give insights into how to control for it and which effect it has on the users of behavior trackers in general but also users of reading trackers specifically.

As can be seen, most suggested approaches are aimed at the exploration of leisure-based activities and trackers based on them. Especially because there is currently no research available, there is potential that can still be uncovered. Reading trackers are one of many examples of how these trackers can work. By researching it and gaining more insights, reading trackers can be adapted to the users' needs, and the insights adapted to comparable trackers.

Conclusion

Reading is a popular leisure-time activity that can improve a person's relaxation and mental health. While outcome-based trackers have been central to research, not a lot is known about leisure-based apps such as reading trackers that are focused on enjoyment and include the aspect of mental health. This research study aimed to explore the use of reading trackers and the effects on a person's reading intention This was done by exploring four different central features in these apps: social exchange, goal setting, progress tracking, and visualizations and statistics.

Findings have shown that the overall use of reading trackers improves a person's reading experience and therefore positively influence by facilitating social exchange, goal setting, progress tracking, and visuals. For that, a person's intrinsic and extrinsic motivation are increased through motivation and pressure. At the same time, extensive extrinsic pressure leads to less enjoyment of reading as a leisure-time activity and therefore influences the intention to read negatively. It is important to note that visualizations and statistics were found to have no direct impact on a person's intention to read but led to increased enjoyment and engagement with reading tracker apps.

These findings highlight the importance of behavior trackers to balance features aimed at intrinsic and extrinsic motivation and especially the aspects of motivation and pressure. At the same time, the users need to be aware of these effects to be able to regulate them for their own usage. Like this, an environment is created that stimulates intention and behavior change while maintaining the aspects of an enjoyable and fulfilling activity.

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Appendix A

Participant Demographics

Participant	Age	Gender	Nationality	Profession	Used reading tracker	Years of use reading tracker
1	22	Female	Dutch	Student	Goodreads	2
2	19	Female	German	Pupil	READO, Goodreads, StoryGraph, Lovelybooks	2
3	26	Female	German	Student	StoryGraph	1.5
4	20	Female	German	Worker - Apprenticeship	READO	2
5	23	Female	German	Student	Goodreads	2
6	22	Female	German	Student	Goodreads	2
7	51	Female	German	Worker	READO, Bookstats	5
8	28	Female	German	Student	READO	3
9	23	Female	German	Student	Goodreads	2.5
10	31	Female	German	Worker	READO	1.5
11	20	Female	German	Worker - Apprenticeship	READO	1.5
12	23	Male	Dutch	Student	Goodreads	0.5
13	27	Female	German	Student	StoryGraph	3
14	36	Female	German	Worker	READO, Goodreads	0.5
15	23	Female	German	Integrated degree programme	READO, Goodreads	2
16	21	Female	American	Student	Goodreads	7

17	27	Female	German	Student	StoryGraph	2.5
18	38	Female	German	Worker, student	READO	0.5
19	18	Female	German	Pupil	Goodreads, READO, StoryGraph	3
Average	26.21					2.32

Appendix B

Interview Questions

Interview Questions English

Demographics

- What is your nationality?

- How old are you?

- Which gender do you identify with?

- What is your highest level of completed education?

- What is your current occupation?

- Which reading trackers are you using / have you used?

- How long have you been using reading tracker apps for?

General opinions

- Why did you start using a reading tracker?

- Why are you using reading trackers now?

- What are your general experiences with reading trackers?

- Which features do you use within reading tracker apps?

    o How does that differ from when you started using the app(s)?

Social feature

- In which ways do you make use of the social features in the app?

    o adding friends

    o comparing progress

    o joining buddy reads

    o having discussions

- Do you compare yourself to other people within the apps?

- Are you being influenced by others in your reading behavior and how?

- Does the social exchange motivate you or have other positive impacts on your intention to read?

- Does it have negative effects on your intention to read?

- Would you change or add anything regarding this feature?

Goal setting

- What kind of goals do you set for yourself?

- How do you decide on goals you set for yourself within the app

- Is setting a goal for yourself helpful for you?

- Do you usually reach your goals

    o If not: why do you think that?

- Does setting goals motivate you or have other positive impacts on your intention to read?

- Does this have negative effects on your intention to read?

- Would you change or add anything regarding this feature?

Progress tracking

- How often do you check your progress?

- How do you feel when you are behind/ahead of the calculated schedule?

- Does seeing your progress motivate you or have other positive impacts on your intention to read?

- Does this have negative effects on your intention to read?

- Does it influence your choice of books (e.g., shorter books)?

- Do you use the streak feature?

    o How does this influence your intention to read?

- Would you change or add anything regarding this feature?

Visualizations and statistics

- How does your reading tracker provide you with visualizations and statistics?

- How often do you see/look at these?

    o Seeing vs actively looking for them

- What do you think of these visualizations & statistics?

    o Are they helpful for you?

- Do they motivate you or have other positive impacts on your intention to read?

- Do they have negative effects on your intention to read?

- Would you change or add anything regarding this feature?

Closing

- Do you have any other remarks you would like to share / any other features that influence your intention to read?

Interview Questions German

Demografie

- Was ist deine Nationalität

- Wie alt bist du?

- Mit welchem Geschlecht identifizierst du dich?

- Was ist dein höchster abgeschlossener Bildungsabschluss?

- Was ist deine momentane Tätigkeit?

- Welche Lesetracker benutzt du bzw. hast du schon mal benutzt?

- Seit wann benutzt du Lese-tracker schon?

Generelle Meinungen

- Warum hast du angefangen Lesetracker zu benutzen?

- Warum benutzt du Lesetracker jetzt immer noch?

- Was ist deine generelle Erfahrung mit Lesetrackern?

- Welche Features benutzt du in den Apps?

    o Unterscheidet sich das von den Features, die du genutzt hast, als du

      angefangen hast die Apps zu benutzen?

Sozialer Austausch

- Inwieweit benutzt du die Möglichkeit dich mit anderen in der App auszutauschen?

    o Freunde hinzufügen

    o Fortschritt vergleichen

    o Buddyreads beitreten

    o Diskussionen beitreten

- Vergleichst du dich mit anderen Leuten in der App?

- Wirst du durch andere (in der App) in deinem Leseverhalten beeinflusst und wie?

- Motiviert dich der soziale Austausch mit anderen in der App oder hat andere positive

  Auswirkungen auf deine Intention zu lesen?

- Hat es negative Auswirkungen auf deine Intention zu lesen?

- Würdest du etwas an diesem Feature ändern oder hinzufügen?

Das Setzen von Zielen

- Was für Ziele setzt du dir?

- Wie entscheidest du dich für die Ziele, die du dir setzt?

- Ist das Setzten von Zielen hilfreich für dich?

- Erreichst du diese Ziele normalerweise?

- o Wenn nicht: warum?
- Motiviert dich das Setzen von Zielen in der App oder hat andere positive Auswirkungen auf deine Intention zu lesen?
- Hat es negative Auswirkungen auf deine Intention zu lesen?
- Würdest du etwas an diesem Feature ändern oder hinzufügen?

Fortschritt verfolgen

- Wie häufig überprüfst du deinen Fortschritt?
- Wie fühlst du dich, wenn du deinem Plan hinterherhängst bzw. voraus bist?
- Motiviert es dich deinen Fortschritt in der App zu sehen oder hat es andere positive Auswirkungen auf deine Intention zu lesen?
- Hat es negative Auswirkungen auf deine Intention zu lesen?
- Beeinflusst es die Bücher, die du wählst (z.B. kürzere Bücher)?
- Benutzt du die Streak-funktion?
  - o Wie beeinflusst das deine Intention zu lesen?
- Würdest du etwas an diesem Feature ändern oder hinzufügen?

Visualisierungen und Statistiken

- Wie Bzw. in welchem Maß stellt dir dein Lesetracker Visualisierungen und Statistiken zu Verfügung?
- Wie oft schaust du dir diese an?
  - o Ansehen vs. aktiv danach gucken
- Wie findest du diese Fortschritt Visualisierungen und Statistiken?
  - o Sind sie hilfreich für dich?
- Motivieren dich Fortschritt Visualisierungen und Statistiken in der App oder hat andere positive Auswirkungen auf deine Intention zu lesen?

- Hat es negative Auswirkungen auf deine Intention zu lesen?

- Würdest du etwas an diesem Feature ändern oder hinzufügen?

Ende

- Hast du noch andere Anmerkungen, die du gerne Teilen möchtest / andere Features, die deine Intention zu Lesen beeinflussen?

Appendix C

Original Codebook

Code Category	Code Name	Definition	Example
General opinion	Positive opinion	Refers to a person liking reading trackers generally or in certain parts.	"I would say I have a positive experience with it."
	Negative opinion	Refers to a person disliking reading trackers generally or in certain parts.	"I had a time where I did not have that much time or desire to read and then it pressured me a lot which is not nice."
	Improvements	Refers to possible improvements that could be made in the apps.	"I think a feature that evaluates it a bit would be cool, how the reading behavior has changed."
	Reading less	Refers to the outcome of a person to eventually end up reading less.	"Partially, when I put too much pressure on myself, I noticed that I just did not want to anymore."
Reason for usage	Social environment	Refers to a person using reading trackers because of other people or for the social exchange that is made possible.	"Because other people used it and then I also wanted to see what they are reading."
	Overview	Refers to a person using reading trackers to gain an overview of their reading behavior in form of a summary or reflection.	"Because I wanted to have an overview about what I read and how much I read."
	Goal	Refers to a person using reading trackers to set a certain goal for themselves.	"Generally, I liked the idea of setting a goal for myself and to see whether I could reach it or not."

Code Category	Code Name	Definition	Example
Social exchange	Adding/ following friends	Refers to a person adding or following other people in the app.	"When I see that people use it as well, I am usually very quick to check out their profile and add them."
	Social exchange	Refers to a person making use of the feature to actively exchange yourself in the app.	"The buddy read function is very nice to read books together and maybe hear other opinions and it is also what I like best about this exchange in the app."
	Comparison	Refers to a person comparing their own reading behavior with other peoples' reading behavior.	"During one time I compared myself to almost everyone that even had a reading goal."
	Inspiration	Refers to a person using the app to get inspiration from other people (e.g., for books).	"I like to look at what other people have and what maybe interests me? There you often discover new stuff that you did not expect before."
	Motivation (social)	Refers to a person feeling positively motivated to read more based on one aspect of or the social feature as a total.	"When I see that I have a book that I cannot motivate myself to read but someone reads it in a buddy read then it can be a great motivation for me."
	Pressure (social)	Refers to a person feeling negatively pressured to read more based on one aspect of or the social feature as a total.	"Sometimes when I put too much pressure on myself because I saw that others read so much."
Goal setting	Realistic goal	Refers to a person setting a lower/ realistic goal for themselves in the app.	"I know for myself that I am rather above than under my goal, that is why I set a lower goal and adjust it maybe in the middle of the year."
	Optimistic goal	Refers to a person setting a higher goal for themselves e.g., as incentive.	"Then it would be realistic for me to read 20 books again, so I set my goal to 24 this year."

Code Category	Code Name	Definition	Example
	Motivation (goal)	Refers to a person feeling positively motivated to read more based on one aspect of or the goal setting feature as a total.	"The goal is like an interim reward; it does motivate me in some way."
	Pressure (goal)	Refers to a person feeling negatively pressured to read more based on one aspect of or the goal setting feature as a total.	"Sometimes I realize that I get too obsessed with this reading goal, and I start to not enjoy my books anymore because I have to read more"
Progress tracking	Motivation (progress)	Refers to a person feeling positively motivated to read more based on one aspect of or the progress tracking feature as a total.	"Being ahead actually motivates me a lot to read more because I see how far ahead I am, and it would be cool if I could be further ahead."
	Pressure (progress)	Refers to a person feeling negatively pressured to read more based on one aspect of or the progress tracking feature as a total.	"When I am behind I a lot of time think oh sh*t, you really have to read more."
	Choice of book	Refers to a person being influenced in their choice of book because of their progress in the app.	"I had time where I was focused on it so much that I chose a thinner book even though I was more in the mood for a thicker book."
Streak	Motivation (streak)	Refers to a person feeling positively motivated to read more based on their streak in the app.	"It sometimes really motivated me, when I was not in the mood, to see: Oh hey, I have my reading streak here."
	Pressure (streak)	Refers to a person feeling negatively pressured to read	"I stopped because it put too much pressure on me."

Code Category	Code Name	Definition	Example
		more based on their streak in the app.	
Visualizations & statistics	Appreciation v&s	Refers to a person generally liking or finding the visualizations and statistics in the app helpful.	"I got a lot of fun working with these statistics and to look in there every once in a while again."

Appendix D

Krippendorff's Alpha Value for Inter-Coder Agreement Round One

Concept	Alpha value
General opinions	1
Reason for usage	1
Social Activities	0.98
Goal setting	0.974
Progress tracking	1
Streak	0.939
Visualizations & statistics	1
Average	0.985

Appendix E

Open AI Statement

During this thesis, the researcher made use of ChatGPT to generate ideas and explanations of texts. It has not been used to write or rewrite texts.

Appendix F

Search Log

Date	Source	Search string	Number of results	Remarks
20.03.24	Scopus	Reading AND tracker OR "Reading Tracker" OR read* AND track*	11,159	First search to see if there is any research available on reading trackers
20.03.24	Scopus	Goodreads	195	Some literature was found for Goodreads specifically
22.03.24	Scopus	Reading AND leisure	1,804	First research on reading as a leisure time activity
22.03.24	Scopus	Reading AND "social activities"	262	Exploration of which activities are commonly combined with reading
22.03.24	Google Scholar	Statistics reading leisure time	2,000,000	Research to find relevant statistics to support statements aboiut reading
28.03.24	Scopus	"Fitness tracker"	2,181	First search about fitness trackers to get a general overview
28.03.24	Scopus	"Behavior tracker"	16	Looking into behavior trackers in general instead of fitness trackers specifically
03.04.24	Scopus	"Behavior tracker" AND "behavior change"	0	Exploration to how behavior trackers can incluence a person's behavior
03.04.24	Scopus	"Behavior change" AND technolog*	5,679	Exploration of how technologies can influence

Date	Source	Search string	Number of results	Remarks
				a peron's behavior, not limited to behavior trackers
05.04.24	Google Scholar	The effect of behavior trackers on behavior and intention	36,200	Further research in how behavior trackers can be used to influence a person's intention and behavior and how the effect works
15.04.24	Google Scholar	Goal setting and behavior change	7,310,000	Gaining deeper insights into how goal setting affects a person's behvior & intention
17.04.24	Google Scholar	Progress tracking and behavior change	3,420,000	Gaining deeper insights into how progress tracking affects a person's behvior & intention
19.04.24	Google Scholar	Visualizations and behavior change	646,000	Gaining deeper insights into how visualizations affects a person's behavior & intention
25.04.24	Scopus	Interview AND method OR interview AND structure	49,184	Finding scientific evidence for the effeceveness of chose interviewing style
05.06.24	Scopus	Pressure AND "behavior change" OR pressure AND behavior	328,632	First research into how pressure or too much pressure effects a person's behavior negatively
05.06.24	Google Scholar	Too much pressure on behavior	5,390,000	Further research into how pressure or too much

Date	Source	Search string	Number of results	Remarks
				pressure effects a person's behavior negatively
08.06.24	Scopus	"Mental health" AND reading	3,015	First search to explore the effects of reading on mental health
08.06.24	Google Scholar	The effect of reading on mental health	5,850,000	Further search to explore the effects of reading on mental health
08.06.24	Google Scholar	Reading statistics	8,050,000	Finding more statistic on reading
08.06.24	Google Scholar	Do audiobooks count as reading?	15,200	Looking for a source to see whether listening to audiobooks is considered reading
26.06.24	Scopus	"Theory of planned behavior"	17,673	Looking into the TPB theory for theoretical background
26.06.24	Scopus	"Self-determination theory"	10,611	Looking into the SDT theory for theoretical background
26.06.24	Scopus	"Social influence theory"	334	Looking into the SIT theory for theoretical background
26.06.24	Scopus	"Social cognitive theory"	7,246	Looking into the SCT theory for theoretical background