OneSight: A Unified Interface of Multi-Social Media Apps for Digital Wellbeing

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Abstract. The digital era has heralded unprecedented connectivity and information accessibility through social media platforms. While these platforms offer valuable benefits, their design mechanisms often promote addictive behaviours, leading to negative physical and cognitive effects. This paper tackles the challenge of fostering a healthier relationship with social media. A comprehensive survey involving 527 participants from the UK reveals a significant level of social media dependency and a strong desire for more self-controlled engagement. In response, we introduce *OneSight*, a novel mobile application that aims to mitigate the addictive elements commonly found on social media platforms. *OneSight* aggregates content from multiple social media platforms into a unified interface and incorporates *features promoting mindful and self-controlled browsing*, such as *reminders* and *timeout locks*. A further three-week field study with 30 participants demonstrates that *OneSight* enhances user agency over their social media consumption habits, offering a more balanced approach to engaging with social media.

Keywords: Digital Wellbeing · Social Media · Commitment Devices · Digital Self-control Tools.

1 Introduction

The digital era has witnessed the meteoric rise of social media platforms, fundamentally reshaping the way we communicate, consume information, and even perceive our immediate surroundings. For many, social media is the first port of call for news, a repository of knowledge often more current and diverse than traditional search engines. Moreover, it provides a unique avenue for personal expression and connection, bridging geographical divides and fostering global communities [1].

Yet, beneath this surface of connectivity and information exchange lie intricate design strategies aimed at maximising user engagement. Each social media platform has its unique hooks to ensnare users, and they employ a range of sophisticated mechanisms to enhance user engagement and foster habitual usage. In daily social media usage scenarios, a common phenomenon is many

users withdraw from one platform, only to instantly fall into the snare of another, making it challenging for them to take a break from social media addiction [24]. Notifications, endless scrolling, and algorithmically curated content feeds keep users tethered to their screens [25]. This incessant engagement leads many users into a relentless cycle of platform-switching, consuming fragmented information, and losing track of time. The physical repercussions, such as eye strain and disrupted sleep patterns, go hand in hand with cognitive costs like dwindling attention spans and challenges to efficient learning and concentration [24].

Despite the evident challenges posed by excessive social media usage, the unique value these platforms offer cannot be denied. However, existing digital self-control applications, which mainly focus on limiting access or monitoring usage, do not address these underlying design elements that contribute to addictive behaviors. There remains a significant gap in solutions that effectively mitigate the addictive nature of social media without diminishing its informational and connective value. Complete disconnection might mean missing out on timely information, opportunities, and social interactions. The challenge, then, is not about severing ties with social media but fostering a healthier relationship with it.

Therefore, the **Research Question** of this paper is: **"How can we enable users to enjoy the advantages of social media while safeguarding their digital wellbeing from potentially addictive mechanisms?"** This paper aims to address this question and propose an innovative solution to establish a more harmonious relationship with our digital interfaces.

This paper introduces *OneSight* (shown in Figure 1), a novel mobile application that uniquely addresses this gap by aggregating content from multiple social media platforms into a unified interface, incorporating features designed to counteract addictive elements such as infinite scrolling, random content refreshes, and autoplay, which are inadequately addressed by current market offerings.

To address this **Research Question**, we adopted a five-step mixed-methods approach illustrated in Fig. 2, and detailed in the rest of the paper. Before commencing this study, we obtained ethical approval from Durham University Institutional Review Board (IRB), ensuring that the study adheres to established guidelines for ethical conduct in human subject research. We started our investigation with a comprehensive survey among social media users in the UK, revealing that a significant portion expressed concerns about social media dependency (see Section 4.1 for more information). In response, we developed *OneSight*, a novel social media content aggregation platform designed to provide a mindful browsing experience. It features a *unified interface*, as Fig.1 demonstrates, for accessing content across the six most popular social network platforms identified from our survey result, including YouTube, Tumblr, Facebook, TikTok, X (formerly Twitter), and Instagram. The effort is to minimise exposure to the addictive mechanism inherent in each platform. *OneSight* also incorporates *time-reminder* and *timeout locks* features to enhance user agency[6] and facilitate self-controlled engagement with social media. Our three-week field study with 30 participants using *OneSight* demonstrated a notable improvement in users' control over their social media consumption habits. Our analysis further indicates that *OneSight* enables users to enjoy the benefits of social media while safeguarding their digital wellbeing from addictive use.

The core contributions of our paper are delineated in the following three aspects:

1. Introducing *OneSight*: a unique platform designed to bridge the gap between connectivity and digital wellbeing, offering an innovative approach to managing social media engagement.

[6] An individual's capacity to act independently and to make their own free choices.

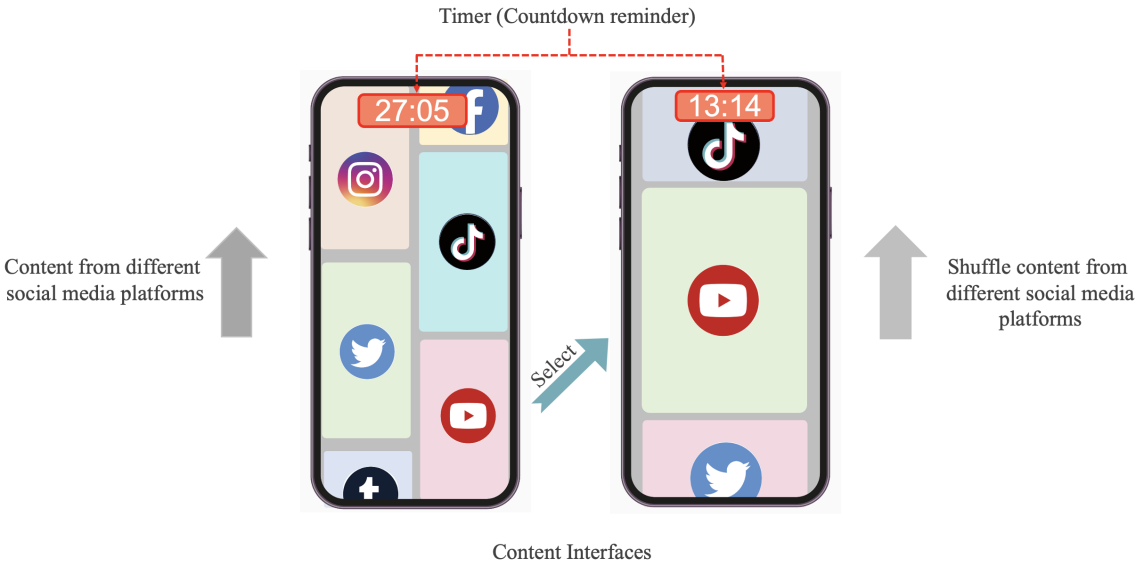

Fig. 1. *OneSight* serves as a centralised hub that aggregates content from various social media platforms into a single, unified interface. *OneSight* incorporates features like time reminders and timeout locks to empower users with enhanced agency over their social media consumption habits.

2. The Large-scale survey reveals users' struggle to manage their time on social media. Most express the desire to access social media content while desiring to reduce overall.
3. Through a comprehensive field study, this paper showcases *OneSight*'s effectiveness in enhancing users' control over their social media consumption, marking a pioneering step in the pursuit of digital wellbeing.

2 Background

In this section, our exploration delves into the background and research motivations by dissecting the complex relationship between users and social media from three perspectives. Initially, we scrutinize the social and scholarly concerns regarding users' diminishing control over their social media usage, highlighting the broader implications of this trend (Section 2.1). Subsequently, we delve into the addiction mechanisms deliberately integrated into social media applications, unveiling how these platforms are engineered to captivate users' attention and foster dependency (Section 2.2). Finally, we assess the array of digital self-control tools that have emerged on the market, aiming to characterize their effectiveness, limitations, and the extent to which they address the core issues of social media addiction (Section 2.3).

2.1 Frustration with Loss of Control on Social Media Platforms

Many mobile phone users have expressed frustration regarding their addictive social media content consumption habits. Distractions from devices, especially phones, hinder users' ability to focus and

often lead to behaviours that they later regret [15]. Such compulsive habits are particularly amplified when users engage with platforms like social media and casual games, which often entice users into extended sessions far beyond their initial intention [14]. This phenomenon, termed "lagging resistance", encapsulates the sentiment where users express the desire to reduce the usage of a particular application but postpone such actions [3]. It reflects an ongoing battle within users, a struggle to change their deeply ingrained digital habits.

There are instances where users have taken radical measures to change these habits. Some resort to completely avoiding their preferred social media platforms [4], sharing passwords with friends to prevent access [3], deactivating their accounts [12], or even deleting apps altogether [32]. However, such drastic steps, often labelled as 'cold-turkey' approaches, come at a cost. Social media platforms, despite their pitfalls, offer significant benefits, from enhancing social capital [13] and fostering interpersonal connections [27], to improving subjective wellbeing [7]. Hence, the challenge is not to eliminate them entirely, but to strike a balance — a concept increasingly referred to as 'digital wellbeing' [33].

2.2 The addictive mechanics behind social media platforms

Extensive research has been conducted on addiction mechanisms in software, gaming, and social media, particularly as they relate to users. Many classification methods and diverse definitions for distinct addiction mechanisms have emerged in this research domain [9, 2, 26]. We summarise the definitions and generalisations in the literature based on the work of Monge *et al.* [25] and list several of the most common mechanisms associated with social media addiction.

Infinite Scroll Infinite Scroll is a user interaction mechanism where content continuously loads as the user scrolls, whether on a mobile app or a webpage. While it offers certain benefits, it aligns with individuals' psychological anticipation of "rewards" and fosters the illusion that fresh and captivating content could seamlessly "flow" [21]. However, it can also become a "harmful feature" [23] or an "anti-pattern" [34] that encourages endless usage sessions [5]. This creates the illusion of an endless flow of engaging content. Although the quality of forthcoming items is uncertain, this mechanism exemplifies how this attention-capturing design pattern can diminish an individual's agency or self-control, leading to increased time spent on platforms.

Random Content Refresh Random Content Refresh allows manual system status refreshing by "pulling" the interface, often accomplished by swiping down on a mobile app [8]. The subsequent animated reload may or may not introduce new content. This design pattern, akin to gambling mechanics, offers variable rewards, leading to compulsive refreshing in hopes of new content appearances [8, 18].

Neverending Autoplay Neverending Autoplay allows videos to play indefinitely without requiring any user interaction. While it offers certain benefits, it can also be seen as a potentially detrimental attention-capturing pattern [5]. This is particularly true when autoplay is constant and never-ending. Similar to Infinite Scroll, Neverending Autoplay offers an uninterrupted stream of content, potentially leading to prolonged viewing sessions [34]. Such a user interaction mechanism can diminish user agency, as they remove the need for autonomous decisions [8].

Time Fog Time Fog, introduced by Chaudhary *et al.* [11], is a user interaction mechanism intentionally employed to divert users' attention from being aware of the time they spend on a platform. For example, platforms like YouTube or Netflix deliberately hide the current time when playing videos. This makes users less aware of how much time has passed. [25].Additionally, moving from one social media platform to another has an additive effect on time expenditure, which is not obvious to the user [33].

These mechanisms collectively illustrate how social media platforms captivate users, often at the expense of their awareness and self-control.

2.3 Digital self-control tools

Digital self-control tools (DSCTs) are designed to empower users to manage their digital engagement effectively, thereby enhancing digital wellbeing [16, 17]. These tools are categorized based on their primary functions: monitoring and limiting usage, blocking access, goal setting, and providing usage feedback [29]. Each category serves to aid users in different aspects of digital self-control:

Monitoring and Limiting Usage Apps and features that track the amount of time spent on digital devices or specific applications. They offer insights into user behaviour and can alert users when they exceed predetermined limits. An example of this is Google's Digital wellbeing tools, which provide a comprehensive view of daily digital habits, allowing users to set limits and unplug during rest hours[7].

Blocking Access Tools that temporarily block access to distracting websites or apps during designated times to help users focus on tasks without interruptions. BlockSite allows users to avoid distractions by blocking websites and apps, offering features like focus mode and scheduling[8]. Cold Turkey Blocker is known for its customization, allowing for scheduled blocks and complete lockouts with "Frozen Turkey"[9].

Goal Setting Features that allow users to set goals related to their digital habits, such as reducing screen time or limiting the use of certain applications. Opal assists in setting digital boundaries with scheduling and usage statistics, blocking non-essential apps and websites[10]. FocusMe allows users to create customized blocklists and schedules for focused work sessions[11].

Usage Feedback Tools that provide users with summaries of their digital activity, highlighting areas where they can improve their digital habits. The Pause extension encourages reflection before visiting distracting websites, offering a momentary pause to foster intentionality[12]. Ochi provides detailed insights into avoided distractions, featuring filters for apps and websites to enhance productivity[13].

[7] Google's Digital Wellbeing. `https://wellbeing.google/`
[8] BlockSite: Easily block distracting websites and apps. `https://blocksite.co/`
[9] Cold Turkey Blocker: The toughest website blocker on the internet. `https://zapier.com/`
[10] Opal: Block distracting websites. `https://www.opal.so/`
[11] FocusMe: The Best App and Website Blocker for Windows, Mac & Android. `https://www.focusme.com/`
[12] Pause `https://freedom.to/blog/8-website-blockers-for-studying-productivity-focus/`
[13] Ochi: Block distracting apps & websites on all devices. `https://ochithe.app/`

Summary Despite the variety and utility of existing digital self-control tools (DSCTs) designed to combat the addictive nature of social media and enhance digital wellbeing, a significant research gap remains. Current DSCTs primarily function by segregating the user from the social media content by limiting access, monitoring usage, or providing feedback on digital habits. This separation approach, while useful, does not address the core issue: the addictive mechanisms embedded within the social media platforms themselves continue to influence user behavior when access is regained.

The main drawback of existing DSCTs is their external position relative to the social media experience. When users engage with social media platforms, they are immediately subjected to the platforms' inherent addictive design features, such as infinite scrolls, personalized content feeds, and notification systems designed to capture and retain attention. Current self-control apps do not integrate with these platforms to moderate this influence; instead, they act as external barriers that users can eventually bypass or disable, leading to a temporary and often ineffective solution.

This oversight highlights a critical research gap and underscores the need for a more integrated approach that combines the benefits of DSCTs with direct interaction with social media content. Such a solution would not only empower users to manage their digital engagement more effectively but also protect them from the underlying addictive mechanisms of social media platforms. By addressing this gap, future research and development efforts could yield tools that offer a seamless, user-friendly experience, enabling healthier social media consumption without sacrificing the inherent value and connectivity these platforms provide.

3 Methodology

To address the research question and issues mentioned above, we adopted a six-step mixed-methods approach illustrated in Fig. 2. Our methodology involved the following there key stages and six steps:

3.1 Survey and Data Collection

The initial phase of our study involved a large-scale survey targeting social media users across various demographics within the UK (Corresponding to Step 1 in Figure 2). This survey aimed to gather data on participants' usage patterns, perceptions of social media's impact on their lives, and their experiences with existing digital self-control tools. This stage was instrumental in identifying prevalent trends in social media usage and the specific challenges users face, thereby informing the design features of *OneSight*.

3.2 App Implementation

Informed by the insights gained from the survey, we embarked on the design and development of *OneSight* (Corresponding to the App application stage in Figure 2). We initiated our process by organizing a co-design workshop that brought together industry professionals (Step 2). This session was aimed at delving into the data gathered from extensive questionnaires, with a focus on identifying key user needs and challenges. Through collaborative brainstorming, we aimed to conceptualize and design an application aligned with our predefined requirements. After the workshop, we designed the *OneSight* based on the ideas gathered from the brainstorming (Step 3). The application integrates content from multiple social media networks into a *unified interface*, aiming to minimize users' exposure to addictive design features. Special attention was given to incorporating *time-reminder* and *timeout locks*, grounded in the principles of mindful technology usage.

The development process involved iterative testing and refinement to ensure user-friendliness and effectiveness in promoting digital wellbeing.

Recommendation mechanism. We designed a simple and experimental recommendation mechanism. The system begins by collecting consumer preferences and subscribed content from various platforms. Based on this data, the system randomly suggests content users might enjoy. If users have remaining time for the day, new content is recommended until the daily limit is reached. *OneSight* adjusts the priority of recommendations based on user engagement metrics, including click-through and completion rates, ensuring that users receive their preferred content first, thereby reducing the likelihood of becoming addicted to the less preferred remaining content. During content viewing, a countdown timer enhances users' time awareness. At the end of the day, users can review their usage statistics, gaining better insights into their social media consumption, which fosters self-control. Through this mechanism, *OneSight* isolates users from the addictive algorithms of individual social platforms to help users increase their self-control.

3.3 Evaluation

To thoroughly assess the impact of *OneSight*, we orchestrated a comprehensive evaluation process (as delineated in the evaluation phase illustrated in Figure 2). This assessment commenced with a meticulously designed three-week field study involving 30 participants who were habitual social media users (Step 4). The primary objective of this study was to meticulously track alterations in social media consumption patterns, capture the participants' subjective experiences with *OneSight*, and observe any transformation in their awareness and perspectives on digital wellbeing. Structured as a within-subjects experiment, this setup enabled us to directly contrast the user experiences with *OneSight* against their conventional interactions with social media platforms, thus establishing a clear baseline for comparison.

After the field study, participants were asked to complete an exit questionnaire, which aimed to consolidate their feedback and reflections on using *OneSight* (Step 5). To deepen our understanding and obtain nuanced insights, selected participants were further engaged in detailed interviews (Step 6). Through this evaluative journey, we endeavor to corroborate the real-world applicability of *OneSight* and identify opportunities for refining and enhancing the platform in response to user feedback and experiences.

4 Experiments

In this section, we embark on a systematic investigation to address the challenges posed by social media addiction and evaluate the effectiveness of the *OneSight* platform in mitigating these issues. Our journey through this research unfolds as follows:

Section 4.1: Large-Scale Survey initiates our exploration by presenting the findings from a broad survey designed to understand social media usage patterns and the perceived impact of its addictive nature on users. This foundational step informs the subsequent development and fine-tuning of *OneSight*. **Section 4.2: Co-design Workshop** details our collaborative design process, where insights from the survey are transformed into actionable features for *OneSight*. This phase emphasizes the importance of integrating user feedback and expert knowledge in crafting a platform that addresses the core aspects of social media addiction. **Section 4.3: App Development** follows, showcasing the iterative development of *OneSight*. This section highlights the implementation of key features aimed at promoting digital wellbeing and providing users with tools for more mindful

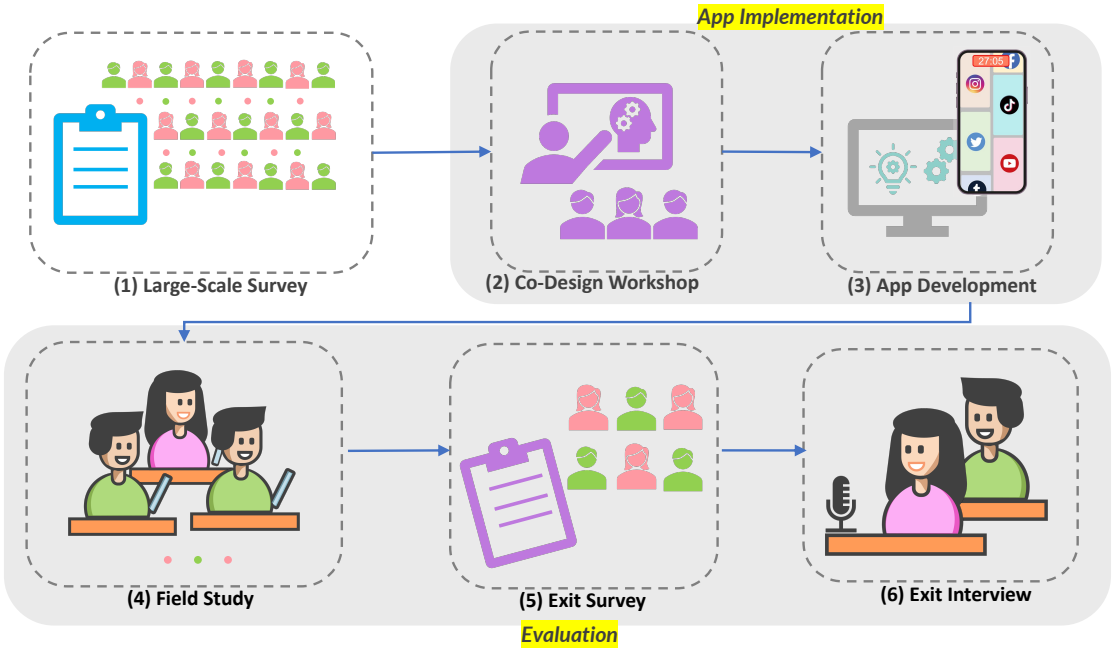

Fig. 2. Overall methodology.

engagement with social media. **Section 4.4: Field Study** concludes our experimental exploration with an in-depth analysis of *OneSight*'s real-world impact. Through a comprehensive field study, we assess the platform's effectiveness in altering social media consumption habits toward healthier patterns. **Section 4.5: Exit Survey** and **Section 4.6: Exit Interview** offers additional insights into the user experience with *OneSight*, drawing conclusions on its utility and areas for future enhancement based on participant feedback.

4.1 Large-Scale Survey

Firstly, to understand how social media users use various platforms, we distributed a survey via **Qualtrics** [14]. The survey explored their perceptions and attitudes towards social media usage. It also queried participants about their concerns regarding time spent on social media, including whether they found it bothersome or had experienced unconscious app-switching. Particular focus was on understanding the influence of specific mechanisms, including " Infinite Scroll", "Random Content Refresh", "AutoPlay", and "Time Fog" on user behaviour. Furthermore, participants were asked about their use of screen time control software and their experiences with it.

Demographics: Questionnaires were distributed to participants from the UK who had smartphones and experience using social media. Of the 586 questionnaires distributed, 527 were completed and thus analysed. Table 1 presents the demographics of the survey participants. Most of

[14] https://www.qualtrics.com

them were between 25 to 34 years old and predominantly held a Bachelor's degree. This is appropriate, as studies show a predominance of addictive behaviour in adolescents and younger adults [31] (Figure 3 shows the Average Daily Social Media Usage (in hours) by Age and Education level). In terms of gender, there was nearly an even split between females (46.81%) and males (49.52%), with a slight skew towards males. The data also revealed a preference for the Android smartphone operating system (53.66%). Notably, the largest segment of participants reported spending 3 to 4 hours daily on social media (25.83%). Additionally, the top six most popular social media platforms identified were YouTube, Tumblr, Facebook, TikTok, X/Twitter, and Instagram.

Table 1. Demographics of Survey Participants

Category	**Distribution**
Gender Identity	Male: 49.52%, Female: 46.81%, Other: 2.90%, Prefer not to say: 0.58%
Age	$\leq$ 15: 4.75%, 15 to 24: 20.72%, 25 to 34: 40.87%, 35 to 44: 20.91%, 45 to 54: 7.98%, $\geq$ 55: 4.56%
Education	Primary School: 2.48%, Middle School: 6.67%, High School: 20.19%, Bachelor: 49.52%, Master: 14.29%, Doctorate: 6.67%
Smartphone System	Android: 53.66%, IOS: 42.80%, Other: 3.35%
Average Daily Social Media Use	$\leq$ 1 hour: 5.09%, 1 to 2 hours: 18.20%, 3 to 4 hours: 25.83%, 5 to 6 hours: 17.22%, 7 to 8 hours: 16.44%, 9 to 10 hours: 10.76%, $\geq$ 10 hours: 6.26%

Perspectives on the mechanisms of social media addiction In the survey findings, 18.11% of the respondents voiced acute apprehension about the duration of their social media usage, with an additional 34.71% expressing a moderate level of concern. The phenomenon of subconsciously toggling between various social media platforms was reported by over half, with 51.39% acknowledging this behaviour. Our study took a closer look at specific addiction mechanisms. Surprisingly, "Random Content Refresh" received 39.19% of positive responses, with subsequent interviews echoing this to its potential to help break the restrictions on content with different viewpoints. Meanwhile, both "Time Fog" and "Autoplay" were highlighted as significant contributors to users' diminished sense of time, with 48.70% linking them to their weakened time management.

4.2 Co-design Workshop

Subsequently, to gain insight into social media addiction mechanisms and how to mitigate its effects in the design phase, we conducted a co-design workshop with five seasoned industrial designers to conceptualise the foundational framework for the design of *OneSight*. Each participant boasts experience with at least four of the six apps we focused on (YouTube, Tumblr, Facebook, TikTok, X/Twitter, and Instagram). Moreover, they had engaged with these selected social media platforms for at least a year, dedicating over an hour daily to their usage.

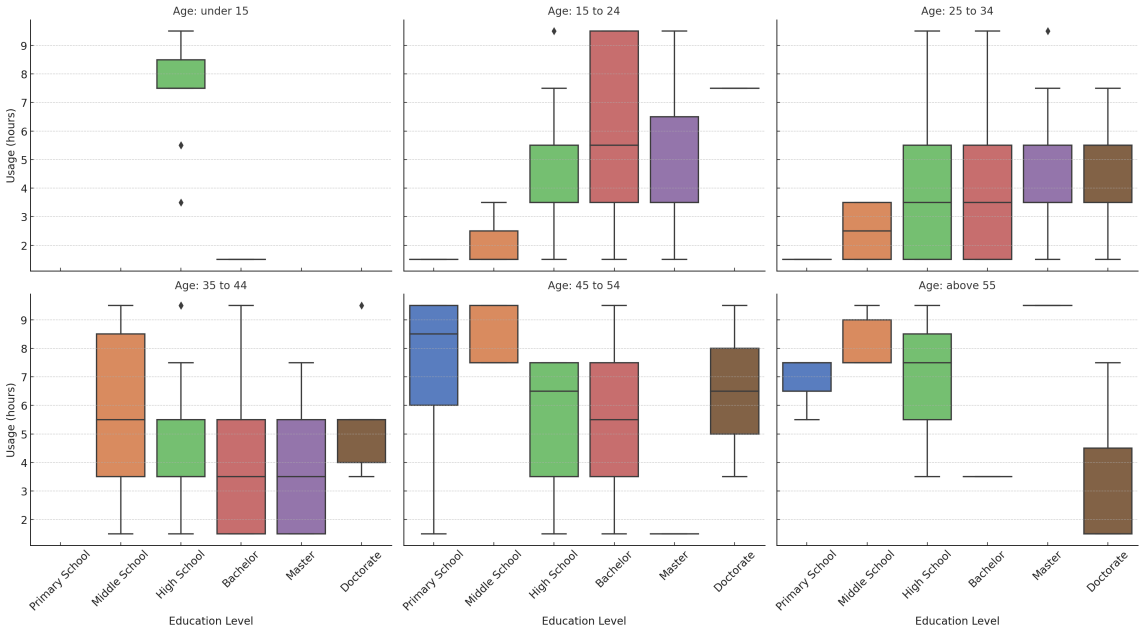

Fig. 3. Average Daily Social Media Usage (in hours) by Age and Education level

In the workshop, they were tasked with envisioning the ideal app and drawing inspiration from the data we gathered through our questionnaire, using the "Think Aloud" [10] qualitative research technique. This method is highly regarded for its ability to garner deep, candid insights into participants' thought processes, which is vital when shaping intuitive user interfaces [10]. Thus, they were encouraged to openly discuss their preferences, development experiences, requirements, and budding design concepts. Our team meticulously noted specific features, capabilities, and anticipated hurdles as they voiced their ideas. After two iterative discussions, a unanimous agreement emerged regarding the design's efficiency, user-friendliness, and adaptability.

The frequent behaviour of users' subconsciously toggling between multiple social media platforms, as highlighted in our questionnaire, led us to the concept of a *unified interface*. To address the prevalent issue of "Time Fog", we introduced the idea of *time reminders* within the browsing interface. Furthermore, to counter the challenges posed by "Infinite scrolling" and "Autoplay", we proposed a *timeout locks* feature based on duration and page views.

We brainstormed various strategies to counteract the addictive mechanisms of social media, including content restrictions, time limits, and reducing random content refreshes. Moreover, we explored diverse methods of content presentation. For instance, users can select different platform icons to browse content from various platforms individually. Ultimately, we decided to adopt a UI style like the popular Chinese social platform Xiaohongshu [15], where content from different platforms is randomly displayed in two columns with continuous scrolling. We incorporated a time reminder feature into this format to enhance user control. Fig. 4 shows the Sketch of the Co-Design workshop.

[15] https://www.xiaohongshu.com

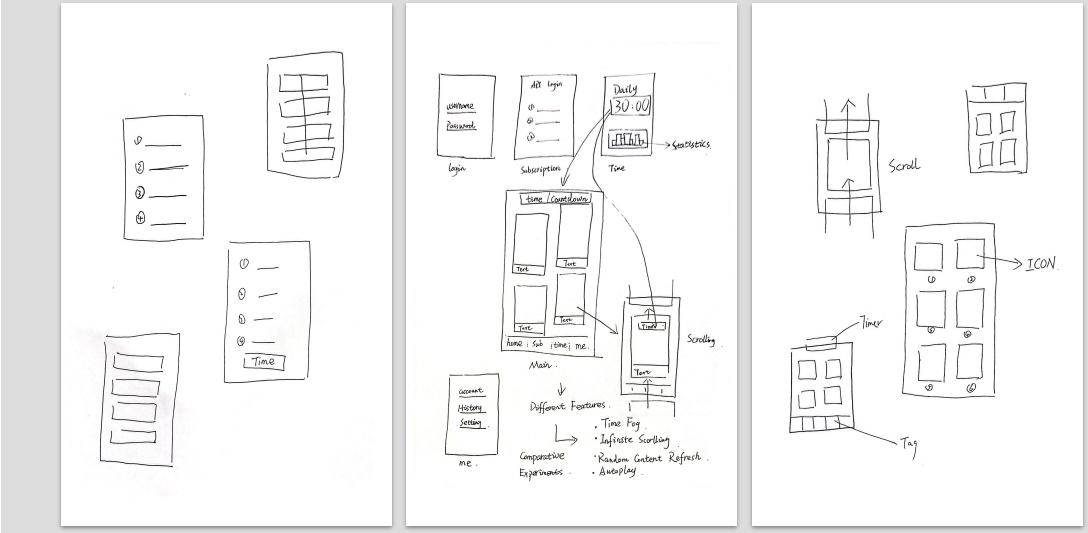

Fig. 4. Sketch of the Co-Design workshop

4.3 App Development

Next, We developed *OneSight*, with all the features proposed in the *co-design workshop*, as introduced previously. It is worth noting that social media platforms, including YouTube, X, and Tumblr, offer robust and open APIs, allowing us to seamlessly integrate and display a range of content – from text and images to videos – within *OneSight* through its *unified interface*. However, TikTok has stringent external API restrictions. In response, we used its video download API, which allows users to input their preferred subscription content, and our app will update daily by first downloading videos locally and then displaying them within its *unified interface*. While this approach does lead to a notable increase in device cache, we implemented an automatic cache deletion after three days to mitigate this side effect. Additionally, on Instagram and Facebook, *OneSight* is limited by their APIs, allowing it to only play the subscribed short videos, excluding graphical and text content from "friends".

OneSight has three primary features: a *unified interface*, *time reminders* and *timeout-locks*. Fig. 5 illustrates the workflow of how *OneSight* works. In *OneSight*, users can aggregate content from multiple social media platforms using the *unified interface*. The first time a user interacts with a specific social media button, *OneSight* redirects them to the respective platform's login page. Once authenticated, the user's feed within *OneSight* starts including content from that subscribed platform. Users can easily unsubscribe by closing the social media button, which stops content from that platform, as demonstrated in Fig. 6 (a). The feed page provides a central view of content from all subscribed platforms (Fig. 6 (c)), displayed in a random order for a diverse browsing experience. For a more focused view (Fig. 6 (d)), users can click on any content module to see it in full-screen mode. Within this mode, users can swipe up or down to navigate through the video content and

swipe left to return to the main feed page. *OneSight* also includes a 'Statistics' page (Fig. 6 (e)) where users can see a visual representation of how much time they spend on the app each day. This page also allows users to set time limits for app usage, as shown in Fig. 6 (b), and it prominently displays the remaining time at the top of both the feed and full-screen interfaces. This helps users keep track of their screen time. When the set time limit is reached, or if they have seen all the subscribed content for the day, *OneSight* switches to a lock screen, preventing further use of the feed page for the rest of the day.

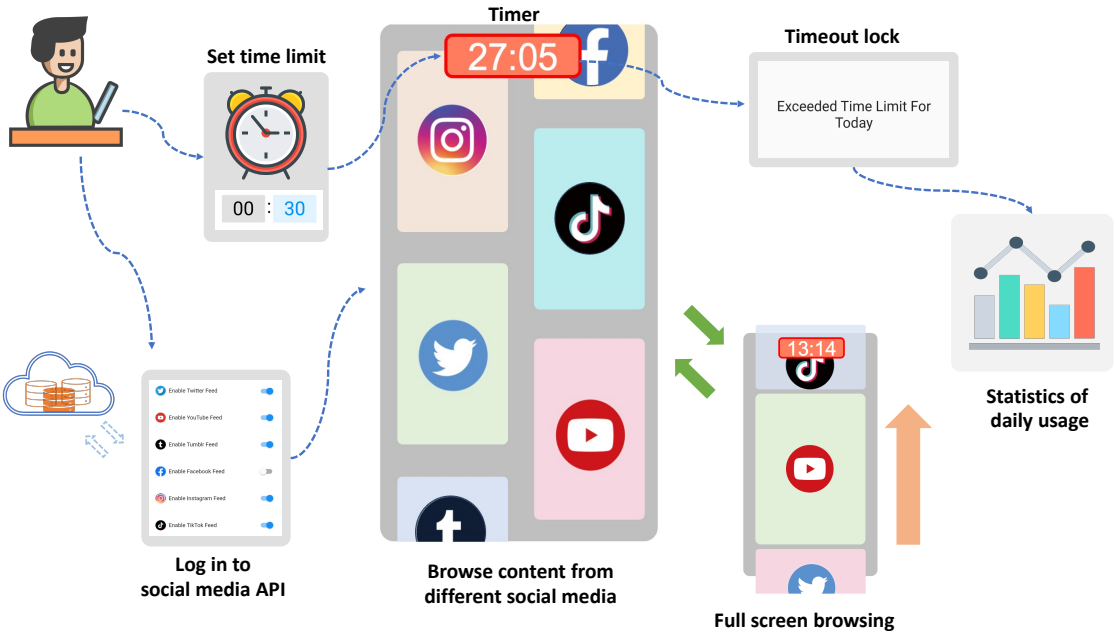

Fig. 5. *OneSight* User Guide.

4.4 Field Study

Subsequently, we conducted a three-week within-subject field study, to analyse the changes in participants' social media usage patterns. This involved collecting background time statistics and exploring variations in the usage time of different phone features over three weeks. Furthermore, we used a questionnaire to investigate participants' satisfaction with *OneSight*. The aim was to assess how participants perceived time management when using different features of *OneSight*, compared to reverting to their original usage routines - using and switching between individual platforms to access social media.

For this field study, we recruited 30 participants. They started with downloading *OneSight* on their own phones and completing an *entrance survey*, which collected the participants' demographic information and their social media consumption habits. The result shows that they were evenly split

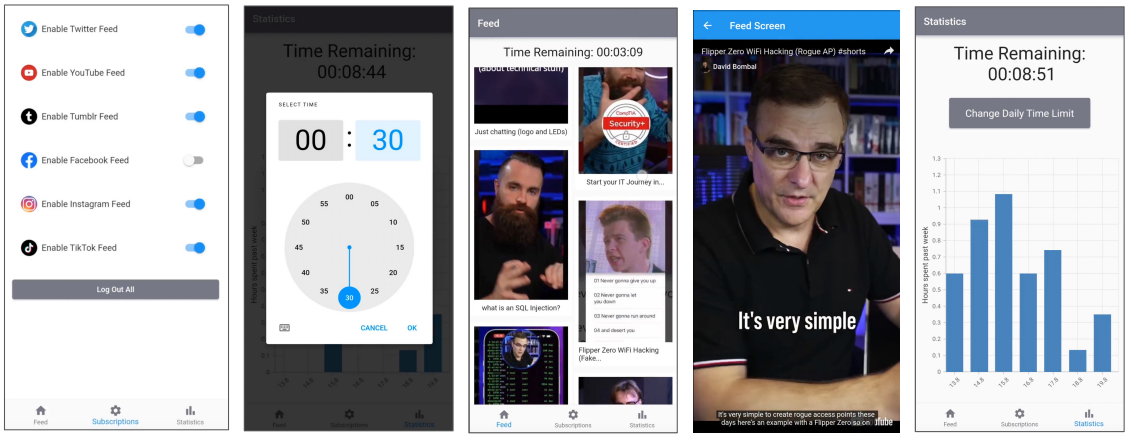

Fig. 6. Different pages of *OneSight*

between males and females, and their average age was 29, with a standard deviation of 7.5. While two participants reported using social media for less than 3 hours daily, the majority exceeded 4 hours, before joining our study. Overall, the average daily usage was 4.04 hours, with a standard deviation of 1.95.

Over three weeks, participants were asked to use either *OneSight* or the individual social media platforms for at least 30 minutes per day, on at least three days each week. In the first week, participants were asked to use only *OneSight*'s *unified interface* showing the subscribed content from various social media platforms, both in feed and full-screen modes. When a participant was using *OneSight*, the screen would be locked once all the subscribed content had been viewed, and there were no time restrictions in place.

During the second week, besides *unified interface*, two new features were introduced: *time reminders* and *timeout locks*. Participants could set how long they wanted to use *OneSight*, which would then either lock upon reaching the time limit or once the day's subscribed content was all viewed. Additionally, participants could see information about their daily app usage on the statistics page.

In the third week, participants were asked to revert to using their original social media platforms and not using *OneSight* at all. This was done to see if there were any changes in their social media usage habits after using *OneSight*. At the end of the third week, participants were asked to uninstall *OneSight* and complete a *concluding survey*. Additionally, a randomly chosen group was invited for in-depth *exit interviews* to get more detailed feedback.

In this Field Study, we used a reward system, shown in Table 2, that increased over time to encourage participants to stay engaged. This progressive incentive method allowed us to examine how different app settings impacted user experiences and usage behaviours every three weeks [20]. Specifically, participants received £5 upon completing the *entrance survey*, another £10 for the first week using the *"unified interface"* function, another £20 for the second week with **" time reminder"** and *"timeout locks"* functions, and finally another £30 for the third week they went

back to their usual social media habits and completed the *exit survey*. Some participants who were selected for an *exit interview* received an extra £10.

Table 2. *OneSight* User Study Timeline

	Start	**Week 1**	**Week 2**	**Week 3**	**Finish**	**Subset of participants**
Study App	Install *OneSight*	Unified Interface	Time Limits	Original Usage	Uninstall *OneSight*	
Activities	Entrance Survey	At least 3 days/week; 30 mins/day			Exit Survey	Exit Interview
Incentive	£5	£10	£20	£30 (3 weeks + Exit Survey)		£10

Usage Data Analysis To analyse whether using *OneSight* can change users' social media usage behaviour, we conducted a statistical analysis on how long users used *OneSight* each day. Fig. 7 presents a heatmap that visualises the usage patterns of these 30 participants over the three-week period of the field study. The colour gradient represents different usage levels during the three weeks. In the first week, users generally spent around 2.5 hours on their phones each day. This was reduced in the second week, down to about 2 hours a day. However, in the third week, there was an increase, bringing the average back up to about 3 hours per day. This suggests that using *OneSight* helped users have better control over their social media time and reduce their usage (enhanced self-control).

4.5 Exit Survey

The System Usability Scale (SUS) [19] was employed to assess user satisfaction with *OneSight*'s usability among 30 participants. The app received an average SUS score of 77.00, which suggests that users generally found it easy to use. However, a high standard deviation of 11.66 suggested that opinions varied among users. The median score was also 77.00, with an interquartile range (IQR) of 5.00. This places the app within the "good" usability category according to SUS guidelines, but the notable standard deviation implies diverse opinions about its usability.

Regarding survey reliability, Cronbach's α coefficient [6] was used to measure how consistent the survey responses were. The overall value was 0.71, indicating commendable reliability. The specific parts of the survey also showed good reliability: 0.67 for "Feature Experience Satisfaction", 0.73 for "Control Time Outcome Satisfaction", and 0.71 for "Likelihood of Continued Use". We also assessed how each part contributed to the overall internal consistency. When we removed each of the mentioned parts one by one, we obtained values of 0.57, 0.49, and 0.43, respectively. This indicates that each part contributes to the questionnaire's overall consistency.

Analysis of *OneSight* Usage Over Three Weeks We initially subjected the raw data to tests for normality and variance homogeneity to explore the variations in the usage time of different features of *OneSight* over three weeks.

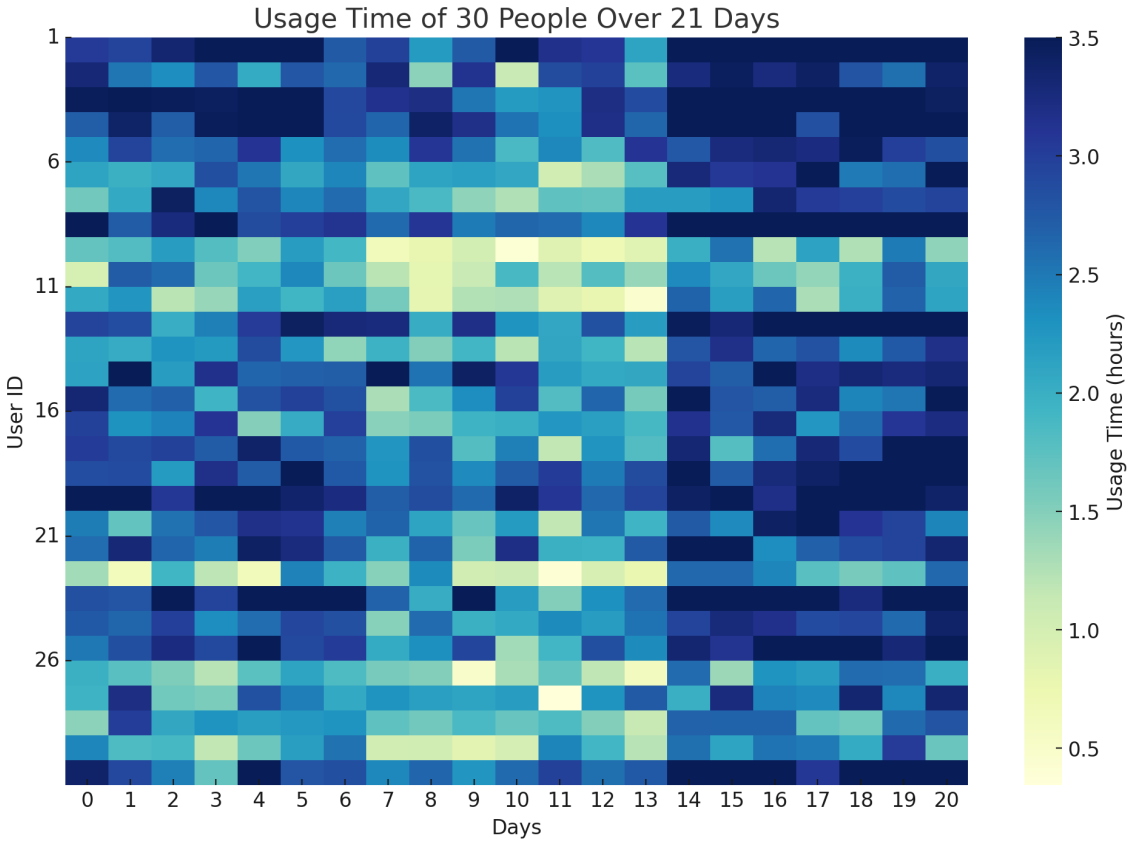

Fig. 7. Usage Time of 30 participants over three weeks. The vertical axis represents participants numbering from 1 to 30, while the horizontal axis spans the three-week experimental period. A darker shade indicates a heavier social media usage duration. It clearly illustrates the changes in time usage over the three weeks, which shows that *OneSight* offers users enhanced self-control when consuming social media content.

We used the Shapiro-Wilk test [28] to determine if the data was normally distributed. Some data columns did not follow a normal distribution. Then, we conducted Levene's test [30], which indicated that all data columns had homogeneous variance. Since the data did not follow a normal distribution, we opted for the non-parametric Kruskal-Wallis test [22] for further data analysis.

Firstly, a Kruskal-Wallis test was conducted to examine if there were any significant differences in daily usage within each week. The results showed no significant differences. Next, we computed the average time for each week and subjected this data to another Kruskal-Wallis test. This time, we found a significant difference in average and median usage times over the three weeks. The p value was $0.0427 < 0.05$. This leads us to conclude that we observed notable differences in how *OneSight* was used across the three weeks, particularly when considering the overall weekly usage (average usage time).

Participant Rating for Different Features "Unified interface" received an average rating of 1.0, highlighting a generally positive satisfaction. On the other hand, "Time Reminder" had a median rating of 0, indicating a neutral perception from most participants. There is a wide range of perceptions for "Full Screen", as shown by its standard deviation of 2.00. Interestingly, both "Subscription" and "Full Screen" lean left-skewed, showing that a larger portion of participants provided ratings above the median, with modes (most common ratings) of 2.0 and 3.0, respectively. In contrast, "Timeout Lock", with a mode of 0.0, and "Time Reminder" suggest more mixed or neutral feedback. The light-tailed nature of the distributions, such as the kurtosis of -1.26 for "Lock", indicates fewer extreme ratings. Fig. 8 shows the stacked percentage distribution of user ratings.

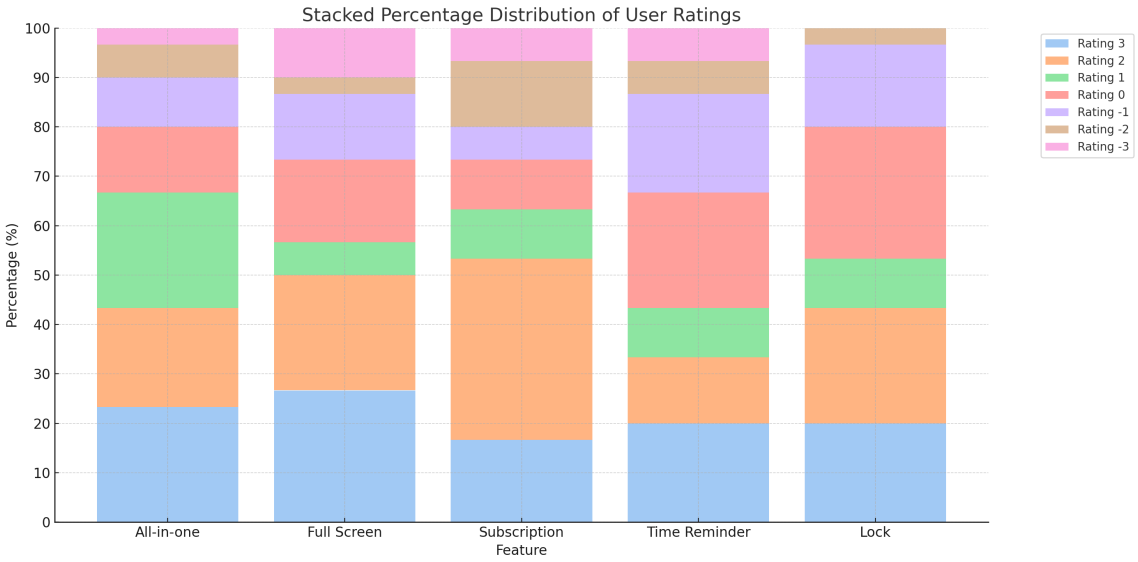

Fig. 8. User rating to different features of *OneSight*, there are five features for the user's rating, including "unified interface", "full screen", "subscription", "time reminder" and "timeout locks". Different colours represent different scores, and the height of the colour block represents the percentage of different scores.

4.6 Exit Interview

Finally, we conducted the *exit interview* with five randomly selected participants, to understand their opinions on *OneSight* and whether our app enabled them to control their time better while accessing social media content. To safeguard the privacy of our participants here, we used codenames A through E to represent the five participants.

We conducted the *exit interview* with five randomly selected participants to gather insights into their *OneSight* experience, seeking their opinions and valuable suggestions for improvement. Here are key takeaways from these interviews:

Participant C liked the concept of *OneSight* and believed it could help with managing time. However, they expressed concern about the app's limited features, such as being unable to comment or like videos. Due to its one-way interaction, they did not see themselves using the app exclusively in the future.

Conversely, Participant A liked *OneSight*'s simple design. In their opinion, the absence of additional features was the app's strength, as it could prevent users from spending excessive time on social media.

Participant E mentioned that they turned to social media for leisure when they were not busy with study or work. In such cases, they felt that using *OneSight* might not give the same experience as using standalone apps. However, if one aimed to manage their time better, using *OneSight* could be really helpful.

In addition, Participant A expressed that using *OneSight* made it easy to access different social media content all in one place, which was very convenient. Nevertheless, they also highlighted that each app has its own unique features. For instance, they preferred X for news updates, while they used Facebook and Instagram to keep up with friends. For entertainment, they leaned towards YouTube and TikTok. Each app had its own purpose, and combining them all in one place could be somewhat confusing.

Overall, participants had mixed opinions on *OneSight*. Some appreciated its simplicity, while others were concerned about its limited features. They also recognized that different social media platforms serve different purposes.

4.7 Data Privacy

We assigned each participant a unique six-digit ID (e.g., ID: 275368) to track their app usage. This ID was linked to information such as survey responses and interviews, but not to any personal details. All the data was securely sent to BigQuery using a safe encryption method (HTTPS) to prevent any potential data leaks. All personal privacy information from user history logs has been removed, retaining only the user's participation ID for identification.

5 Discussion

5.1 The Impact of *OneSight* on Social Media Usage Behaviour

OneSight's role in reshaping social media usage behaviour is noteworthy. The field experiment showed a significant decrease ($p=0.0427$) in daily social media usage during the first two weeks when participants used *OneSight*, particularly in the second week with the introduction of *time reminders* and *timeout locks*. This suggests that the *unified interface* could help curb excessive social media

usage, and the additional features were even more effective. It is important to note, however, that the usage increased again in the third week after *OneSight* was removed. This indicates that while *OneSight* was successful in reducing the users' social media usage, this effect was not sustained once the app was removed. Nevertheless, as our experimental period was only three weeks, further study is needed to examine whether this effect could be prolonged with longer use of *OneSight*. In the meantime, the participants could consider continuing to use *OneSight* to maintain control over their social media usage.

5.2 User Perspectives on *OneSight*'s Minimalistic Approach

OneSight's minimalistic design garnered mixed perceptions from participants during the field study. While some participants appreciated the simplicity and absence of features like comments and likes, others expressed concerns about the lack of interactive elements. *OneSight*'s minimalist approach may be suitable for participants seeking reduced distractions and enhanced time management. However, for those accustomed to engaging with social media through likes, comments, and interactive features, the app's limitations might deter them from adopting it as a primary platform. This underscores the importance of offering user customisation options in future iterations of *OneSight* development, allowing participants to tailor their experience according to their specific preferences.

5.3 Limitations and Future Work

This work has several limitations. Firstly, while we have implemented specific functions to address particular aspects of user addiction and assist users in enhancing their digital wellbeing, it is essential to acknowledge that addiction is a complex psychological issue. Focusing solely on these aspects may offer a somewhat one-sided perspective. Secondly, due to constraints associated with external APIs, we could not fully implement each platform's features, such as "likes" and "comments". This limitation has a twofold effect. On the one hand, while *OneSight* effectively reduced social media usage time, the absence of features such as "likes" and "comments" somewhat skewed the comparison. On the other hand, it constrained the user experience within *OneSight* and might prevent it from completely replacing other platforms in the three-week field study. Consequently, despite our request to participants, they may still access individual social media platforms, potentially influencing the experimental results. Lastly, our study's sample size and the duration of user engagement are relatively limited. As such, the findings may not readily extend to larger-scale or longer-term experiments. Nevertheless, our study does demonstrate an innovative approach to tackling the challenge of social media addiction.

6 Conclusion

In this paper, we have addressed the research question - "How can we enable users to enjoy the advantages of social media while safeguarding their digital wellbeing from potentially addictive mechanisms?" This was achieved through the development and evaluation of *OneSight*, an innovative platform created to mitigate the addictive aspects commonly found in social media apps. *OneSight* aggregates content from multiple social media platforms into a *unified interface*. Its core purpose is to combat addiction by shielding users from the underlying addictive mechanisms of each platform. Our primary contribution lies in its potential to reshape users' social media experience and help them regain control over their digital lives.

In the three-week field study, we conclusively demonstrated *OneSight*'s effectiveness in significantly reducing daily social media use, particularly when users were exposed to combined features of a "unified interface" *unified subscription interface*, *time reminders* and *timeout locks*. This highlights the app's practical value in assisting users with effective time management and curbing addictive use.

However, our study also has several limitations, primarily due to API constraints and the challenge of entirely replacing individual social media platforms. This underscores the need for a more comprehensive approach to tackle digital addiction, one that encompasses psychological, social, and environmental factors.

7 Declarations

7.1 ACKNOWLEDGMENTS

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7.2 Conflict of Interest

The authors declare that they have no conflicts of interest in this work.

7.3 Data Availability

All data collected and analyzed during this study, as well as the full source code of the OneSight application, will be made publicly available on GitHub upon acceptance of this manuscript. The dataset will be anonymized to ensure participant privacy, and access will be unrestricted for research and reproducibility purposes. A permanent GitHub repository link will be provided in the final published version of the article.

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8 Appendices

8.1 Large-Scale Survey

- What is your age?
- What is your gender?
- What is your highest level of education completed?
- Please list your top three most used social media platforms and rank them.
- In the past week, on average, approximately how much time PER DAY have you spent actively using social media overall?
- Do you think you spend too much time on social media?
- Are you bothered by spending too much time on social media?
- The "mechanisms" addressed in the following four questions are the means by which common social media applications are designed to prolong user engagement. Please answer the following questions.
- The "infinite scrolling" mechanism means that as the user scrolls down the page, more content will automatically continue to load on the page, and you can never refresh to the bottom. Do you think this mechanism is designed for social media apps? Is it positive or negative for your experience of using social media?
- A "random content refresh" mechanism means that when a user swipes down on a smartphone, the page is animated to reload, possibly updating some content in previously unfamiliar territory. Allows you to view relatively unfamiliar information. Do you think this mechanism is designed for social media apps? Is it positive or negative for your experience of using social media?

- The "autoplay" mechanism means that after the current video is played, the next video will be played automatically, and the user will not stop until the user terminates. And the option to turn off autoplay is hidden or non-existent. Do you think this mechanism is designed for social media apps? Is it positive or negative for your experience of using social media?
- The "time fog" mechanism refers to a mode in which designers reduce the user's awareness of time. For example, video streaming platforms such as TikTok and Netflix will hide the clock on the screen when playing videos, thereby weakening the user's sense of time. Do you think this mechanism is designed for social media apps? Is it positive or negative for your experience of using social media?
- Which mechanism mentioned above will most influence the duration of your phone usage?
- Have you tried screen time control software to control screen time? (such as Forest, Pomodoro Off-Screen etc.)
- If the above question is yes, what is your experience with these apps?
- Do you have any suggestions to improve the user experience of this type of app?

- How would you describe your overall experience with *OneSight*?
- For each week, to what extent did you feel in control of your *OneSight* usage? Please elaborate on the factors influencing your level of control.
- How satisfied were you with your *OneSight* usage each week?
- (For each feature utilised during each week, display a screenshot of the feature and then inquire)
  - What are your thoughts or concerns regarding this feature?
  - Please rate each feature.
  - Did this feature impact your sense of self-control over your *OneSight* usage? (More in control/No difference/Less in control/I did not use it enough)
- Do you have any additional comments or feedback regarding this study or your experience using *OneSight*?

8.2 Interview Script

- Start with a general question: Reflect on the features of *OneSight*. How have these features impacted your daily social media usage?
- (For each feature included in the experiment, display a screenshot of the feature, and then ask:)
  - What are your thoughts about this feature? Are there features you particularly like or dislike about it?
  - Do you think that you will use *OneSight* more, less, or about the same amount because of this specific feature?
- Looking ahead, is there anything you would like to change about how you use social media in the future? What features or considerations influenced these thoughts?
- Do you have any suggestions for improvements or additional features you'd like to see in *OneSight* based on your experience?
- Now that the study has been completed, would you like me to help you delete *OneSight* from your phone?