"You Go Through So Many Emotions Scrolling Through Instagram": How Teens Use Instagram To Regulate Their Emotions

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Abstract

Prior work has documented various ways that teens use social media to regulate their emotions. However, little is known about what these processes look like on a moment-by-moment basis. We conducted a diary study to investigate how teens (N=57, M_{age}= 16.3 years) used Instagram to regulate their emotions. We identified three kinds of emotionally-salient drivers that brought teens to Instagram and two types of behaviors that impacted their emotional experiences on the platform. Teens described going to Instagram to escape, to engage, and to manage the demands of the platform. Once on Instagram, their primary behaviors consisted of mindless diversions and deliberate acts. Although teens reported many positive emotional responses, the variety, unpredictability, and habitual nature of their experiences revealed Instagram to be an unreliable tool for emotion regulation (ER). We present a model of teens' ER processes on Instagram and offer design considerations for supporting adolescent emotion regulation.

CCS Concepts

• **Human-centered computing → Empirical studies in HCI**.

Keywords

Adolescents, Social Media, Digital Emotion Regulation, Design For Well-Being

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1 Introduction

There is considerable public concern about social media's role in the ongoing teen mental health crisis [2, 9, 31, 42, 104]. Prior research shows a link between teens' social media use and negative well-being, including depressive symptoms, anxiety, and suicidal ideation [26, 51, 68, 74, 89]. Yet, there is also research showing ways that social media can support teen well-being, such as through increased social connection and positive identity development [27, 33, 76, 78].

Currently, we lack sufficient understanding of the proximal processes linking teens' social media interactions and their emotional responses. Such insight will help to inform intervention efforts and policy and design decisions intended to support teens' positive experiences with social media. This paper builds on prior work addressing social media's impact on teen well-being by investigating teens' use of social media to regulate their emotions. Emotion regulation (ER) is central to mental health across the lifespan, but it is particularly salient during adolescence. The ER strategies that teens cultivate during this period of development can set the stage for future psychological health or distress [65, 84].

Today's teens frequently use social media to regulate their emotions [12, 19, 62, 91, 92, 113]. However, little is known about what these processes look like on a granular level, including what drives teens to regulate their emotions on social media and with what effects on their emotional states. Therefore, we investigated the role that Instagram plays in teens' efforts to regulate their emotions. In this diary study, we asked a group of US teens (N=57, M_{age}= 16.3 years) to report on their daily Instagram interactions and emotional experiences for approximately seven days ($M_{responses}$= 6.5, sd=0.97,

min=4, max=9). We chose to focus on Instagram because of the platform's popularity among teens [7] and its prevalence in teen mental health research [30, 53, 57].

Our investigation was guided by the following research questions:

- **RQ1:** What kinds of emotional experiences are teens seeking when they open Instagram?
- **RQ2:** What kinds of emotional experiences are teens having while on Instagram?

Our analysis identified three kinds of emotionally-salient drivers that brought teens to Instagram: they sought to escape (e.g., boredom, school/work obligations, stress), to engage (e.g., connect with friends, pursue interests, self-expression), and to manage the demands of the platform. Once on Instagram, teens described two primary behaviors that impacted their emotional experiences: mindless diversions and deliberate acts. Mindless diversions typically provided quick mood boosts, but they could easily slip into mindless scrolling (marked by a loss of self-control) and could be thrown off course by triggering content. Deliberate acts such as talking with friends, searching for specific information, and posting were more likely to engender self-actualizing emotions (e.g., gratitude, confidence) than the fleeting emotions (e.g., amusement, silliness) that typically resulted from mindless diversions.

The current study contributes empirical evidence showing how teens use Instagram to regulate their emotions. Although teens reported many positive emotional responses, the variety, unpredictability, and habitual nature of their experiences revealed Instagram to be an unreliable tool for emotion regulation. We offer a model that depicts the emotionally-salient drivers to Instagram, behaviors while on Instagram, and teens' emotional responses to their Instagram experiences. We use this model to identify pathways that support more and less adaptive forms of ER on Instagram. We conclude by offering a set of design considerations for supporting teens' ER processes on social media.

2 Background

2.1 Emotion Regulation in Adolescence

Developing during childhood and adolescence [65], emotion regulation (ER) is central to psychological health across the lifespan [16, 25]. ER skills include the ability to recognize, understand, and accept one's emotions, and the ability to employ appropriate coping strategies to modulate emotional arousal and valence [34, 50]. ER is goal-oriented; typically, the goal is to decrease negative emotions or increase positive ones [35, 37]. Strategies to accomplish such goals can be more or less adaptive. For instance, prior research has shown that cognitive reappraisal–an ER strategy focused on changing the way one thinks about a situation–can be adaptive, resulting in decreased depressive symptoms and more positive relationships [37]. Problem solving and acceptance are similarly adaptive ER strategies [4]. In contrast, rumination, avoidance, and suppression of emotional responses are considered less adaptive due to associations with negative psychological and social outcomes [4, 37, 84].

ER plays an important role during adolescence, helping individuals to navigate the many physical, social, academic, and cognitive changes that occur during this stage of development [37, 65]. Amidst these changes, adolescents typically encounter a greater frequency and intensity of emotionally challenging situations than they did in childhood, including interpersonal challenges, increased academic pressure, and the stress associated with increasing independence [65, 84]. Their heightened emotional reactivity–especially to situations involving high social salience [46, 65, 96, 97]–can make it difficult for them to manage these challenges successfully, even though adolescents' regulatory capacities are greater than they were in childhood [46]. Adolescents' developing ER skills can help them manage emotionally challenging situations, whereas difficulties with ER can result in forms of psychopathology [65, 84]. Indeed, adolescence represents a period of increased risk for developing mental disorders that involve problems with ER, such as major depression, anxiety disorders, eating disorders, and substance use disorders [65].

Friends often play an important role in influencing adolescents' ER abilities. Whereas children are heavily reliant on caregivers to regulate their emotions [71], adolescents' ER is influenced to a greater degree by peers, in both positive and negative ways. For example, by seeking out friends when dealing with stressors, adolescents can derive social support and develop intimacy [85]. Peers can also facilitate social reappraisal, helping adolescents view emotional events in a different light [88]. However, co-rumination can lead to negative outcomes, and peers can sometimes exacerbate stress and negative emotions [65, 85, 88].

We draw on this body of work from developmental psychology to frame the current investigation into teens' use of Instagram as a tool for ER. This framing helps to illuminate the developmentally salient dimensions of adolescents' emotional experiences on Instagram, and contributes a developmental perspective to the relatively new body of HCI work investigating digital emotion regulation (e.g., [105, 107]).

2.2 Adolescents' Use of Social Media to Regulate their Emotions

Although there is an extensive body of research in HCI exploring the effects of technology use on people's emotions, less is known about how people appropriate digital technologies to *regulate* their emotions [93, 95, 106, 107]. Drawing on psychological theories of emotion regulation (ER) and placing them in the context of computing research, Wadley *et al.* [107] define *digital emotion regulation* as the use of digital technology *"as a tool for strategically influencing our affective states (including emotions, moods, and stress levels)."* Smith *et al.* [95] documented a variety of digital emotion regulation strategies employed by adults, such as listening to a comforting audiobook from childhood, checking email to disengage from an unpleasant work situation, listening to music to soothe worries, and prolonging a positive feeling by messaging it to others.

Recent studies have explored the role of ER processes in adolescents' social media use (e.g., [109]). This empirical work suggests that turning to social media represents a common ER strategy for adolescents (see [12, 19, 62, 91, 92, 113]). In some cases, the ER goal is to down-regulate negative emotions, such as when adolescents use social media to alleviate unpleasant feelings (e.g., stress, loneliness, homesickness) that they are experiencing in other aspects of their lives [22, 45, 52, 62, 67, 92, 109, 112, 113, 115]. For example, Kelly

et al. [51] found that university students turned to social media to manage feelings of homesickness. West *et al.* [112] documented how adolescents used social media as a space to vent feelings of anger, as well as to find relief from the stress of daily life. Tag *et al.* [99] showed how university students increased their reliance on digital technologies to regulate their negative emotions during the global COVID-19 pandemic. Sometimes, the negative emotions that adolescents seek to down-regulate are induced by social media itself, for instance, when adolescents check social media in an attempt to mitigate worries and fears about being judged, ignored, or excluded [92, 113]. Adolescents also employ ER strategies following negative social media interactions, such as engaging in rumination after an unpleasant peer interaction on social media [54].

In other cases, the ER goal is to up-regulate positive emotions, such as when adolescents use social media for entertainment, information-seeking, and socializing [8, 12, 92, 113]. West *et al.* [113] described how adolescents deliberately turned to social media to put them in a good mood, such as by connecting with friends and engaging with amusing content. By connecting on Instagram, friends often engage in co-regulation as they share their feelings, asking for and receiving emotional support [62]. Adolescents also frequently turn to social media to manage a low-arousal emotion such as boredom [59, 62, 112]. In their model of teens' Instagram use, for instance, Landesman *et al.* [59] showed how the desire to alleviate boredom served as a common trigger for teens to open Instagram, a finding supported by experimental research involving undergraduate students using Facebook and Twitter [29].

The effectiveness of using social media as an ER strategy appears to vary across individuals and the types of experiences they have on social media [82]. For instance, researchers have shown that using social media to connect with others can be an effective ER strategy for adolescents, resulting in increased positive mood [12, 92]. In contrast, turning to social media to avoid in-person interactions or alleviate negative emotions can increase the likelihood of developing problematic social media use (PSMU) [12, 15, 22, 90]. Social media can also lead to increased co-rumination in adolescence [77]. While in-person co-rumination, a co-regulation strategy, has some benefits such as increased closeness and support [85], it is unclear that co-rumination through online platforms and their associated features can confer the same benefits [77].

This body of work provides a useful foundation for describing various ways that adolescents use social media to regulate their emotions. However, we lack a more granular view of teens' direct experiences using social media as an ER tool. Studies that use retrospective self-report (e.g., interview and survey studies) are limited by their reliance on participants' memories and their tendency to elicit general, rather than specific, experiences with social media. Research that uses in-the-moment data collection methods, such as log data and screen captures, can provide a more detailed view, but these approaches offer limited insight into the meaning that participants ascribe to their social media experiences. Through a daily diary study, the current work provides needed insight into adolescents' emotionally-salient experiences with social media, including the proximal causes and consequences of regulating emotions on social media and the role of design in shaping ER processes.

2.3 Design's Role in Adolescents' Emotion Regulation on Social Media

Prior work has explored the role of design in shaping people's emotional experiences on social media [106]. Indeed, social media platforms are intentionally designed to elicit and enhance emotions with the objective of increasing user engagement [6, 83]. In contrast to chronologically ordered feeds, for instance, algorithmically curated feeds are programmed to show users content that is more likely to elicit an emotional reaction, whether positive or negative [72], due to the fact that emotionally salient content is known to be more engaging [14]. Within this context, it can be difficult to regulate emotions on platforms that are designed to capture and co-opt attention through emotionally manipulative design [27].

Researchers have documented specific affordances associated with social media that affect people's ability to engage in self-regulatory behavior, including emotion regulation (ER) [79, 82]. For instance, variable reinforcement (through intermittent positive rewards), attentional demands (from push notifications), and ubiquitous availability (through mobile digital devices) promote habitual social media use, which can undermine people's ability to self-regulate [82]. On the other hand, some social media features and affordances appear to support people's ER goals, such as the ability to look up information online to reduce anxiety, connect with a friend regardless of temporal or geographic barriers, and scroll passively through one's feed to distract from unpleasant thoughts [62, 70, 106]. Even so, it is possible for an initially promising strategy to become ineffective or even damaging. For example, researchers demonstrated how youth who show an interest in mental health-related content on TikTok are more likely to encounter content that can undermine their mental health, such as videos that promote depression and self-harm [1].

Another body of work exploring design's role in ER has examined the use of digital technologies to create and deliver ER interventions. Some of this work uses digital technologies such as smartphones as a delivery mechanism for traditional ER support, similar to what one might experience in the context of cognitive behavioral therapy [11, 48]. Within the field of HCI, researchers are seeking to create new forms of ER support through interaction design [24, 56, 87, 94, 106]. For instance, researchers have investigated smart toys that use sensory and physical features and haptic feedback to help children down-regulate negative emotions such as anger and anxiety (e.g.,[47, 101]). Virtual and augmented reality environments have also been explored as a means to support ER skills [49, 55, 108]. Kitson *et al.* [55] proposed a set of design strategies that leverage VR capabilities to help adolescents with the ER skill of cognitive reappraisal, including the use of embedded and embodied scaffolds, providing different points of view, and externalizing thoughts as virtual objects. Other work has sought to embed ER support within commonly used applications, including social media platforms [11]. Verma *et al.* [105] developed a graph-based framework for in-the-moment ER support during social media conversations. Their intervention aims to identify online conversations in which ER is needed and then provide users with information that encourages self-reflection.

We situate the current study within this body of HCI research to help illuminate design's role in shaping adolescents' ER processes

on social media. Existing work illustrates how specific interaction designs can elicit emotions with varying levels of arousal and valence, as well as how design can be used intentionally to support ER processes in children and adolescents. Our study draws on this work to highlight the role of design in our empirical findings and to identify design implications for improving social media's use as an ER tool for adolescents.

3 Methods

All procedures described in this section were approved by our university's institutional review board.

3.1 Participants and Recruitment

We employed snowball sampling to recruit participants. We posted details about our study on social media sites, including Instagram and Snapchat. To be eligible, participants were required to be between the ages of 13-17 years, possess a smartphone for daily use, reside and attend high school in the United States, and self-report using Instagram daily for more than 30 minutes. We used 13 as the baseline age because that is the minimum age requirement for creating an Instagram account. We selected 17 as an upper limit to help ensure participants were still in high school, as prior work has shown differences in youth's social media experiences during and post high school [27]. Moreover, research indicates that this particular age group is at greater risk for negative mental health effects associated with increased social media use [51, 74, 104]. In total, we recruited 70 Instagram users, 57 of whom completed at least four daily surveys (see demographics Table 1). Our sample is comparable to the broader demographics of US teen Instagram users with respect to race and ethnicity, but it has a greater proportion of girls. We did not collect data about household income [7].

Table 1: Demographics of Participants (N=57)

Gender identity	Boys (19.3%), Girls (66.7%), Non-binary or third gender (8.8%), Other (Prefer to self-describe / Prefer not to disclose) (5.3%)
Age (Years)	Mean=16.3, SD=0.9; 13 (1.8%), 14 (1.8%), 15 (14%), 16 (33.3%), 17 (49.1%)
Race and Ethnicity	Asian (31.6%), Black or African American (17.5%), Hispanic or Latine/Latinx (15.8%), White (22.8%), Multiple selected (8.9%), Other / Not disclosed (3.5%)
Self-reported Time Spent on Instagram Per Day (Minutes)	Mean=163, SD=120, Min=24, Q1=75, Q2=148.5, Q3=215.75, Max=568

3.2 Procedure and Data Collection

We conducted a diary study during July-August 2023 in which teens reported daily on their experiences and emotions on Instagram for approximately one week. This period of time is comparable to previous research using the diary study method to document digital emotion regulation [95]. Teens received surveys on their phones at the end of each day asking them to report on their Instagram activities and emotional responses for that day. Participants submitted a total of 371 daily diary entries ($M_{responses}$= 6.5, sd=0.97, min=4, max=9). They were compensated based on the number of surveys they completed ($25 for < 7 surveys, $75 for >= 7 surveys, $100 for >= 7 surveys plus a longer post-survey, not included in the current analysis).

Survey questions asked participants to document specific activities on Instagram (e.g., posting, talking with a friend, encountering funny memes and videos) and the emotions they elicited. They were also asked to reflect more generally on what stood out for them on Instagram that day and the extent to which their Instagram activities impacted the emotions they experienced during the rest of their day (see Appendix A A.1 for the full survey).

We used a Mood Meter (see Figure 1) to aid participants in identifying their emotions. A Mood Meter is a tool designed to help with eliciting and identifying one's emotions [21, 41]. Participants were first shown how to find an emotion on the Mood Meter during the study orientation (a group zoom meeting conducted prior to completing the daily surveys). They were instructed to select emotions based on the 'pleasantness' (valence) of the emotion along the x-axis and the 'energy' (arousal) of the emotion along the y-axis. Introducing and using the Mood Meter with all participants helped ensure that they identified and reported their emotions in a consistent manner.

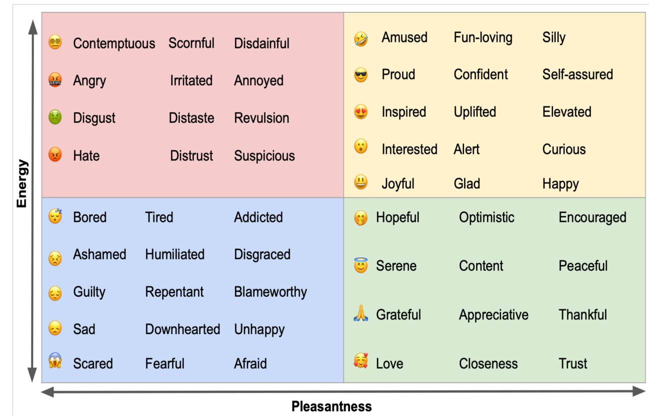

Figure 1: Mood Meter displayed to participants to help them identify their emotional responses while using Instagram.

3.3 Data Analysis

We analyzed our data using reflexive thematic analysis (TA) [17, 18]. Reflexive TA is a flexible, iterative approach to qualitative data analysis that foregrounds the researcher's interpretations of the data in relation to the overarching research questions guiding the study [17, 75]. Reflexive TA differs from more postpositivist approaches to coding and theme development that emphasize quantifiable measures and inter-rater agreement (e.g., [13, 39]).

We followed the six stages of thematic analysis described in [17]. To familiarize ourselves with the data (phase one), the study authors read through the survey responses, taking reflexive notes as we read [17]. We met three times over a period of three months to discuss and document theoretical and reflective thoughts that emerged from our readings. In phase two, the first and second authors read through the survey data a second time to identify initial codes related to our research questions. Example codes from this phase of analysis included "escape RL stress," "relieve boredom," "boost mood," and "find inspiration." These codes were grouped into the broad categories of motivation to open Instagram, experience on Instagram, and emotional effect. The first author used ATLAS.ti [3] to apply the codes to the entire dataset, with the second and last authors reviewing each coded survey.

In phases three-five, we shared and discussed the codes with the larger research team in weekly meetings and asynchronously, using these discussions to develop, define, and refine the interpretive themes reported in this paper. For instance, we identified three clusters of motivations to open Instagram: escape, engage, and IG management. These became the primary themes reported under Emotionally-Salient Drivers to Instagram (see Section 4). We followed a similar process for coding participants' reported experiences on Instagram, with codes clustering around two primary types of experience: mindless diversions and deliberate acts. These became the primary themes reported under Behaviors on Instagram (see 5). We used the codes within each of these clusters in conjunction with the emotional effects codes to provide detail and nuance to each primary theme. Appendix B (A.2) summarizes our final coding scheme.

Following criteria for rigorous qualitative research [102], we strove to establish trustworthiness at each step of the analytic process. These efforts included prolonged and deep engagement with the data during the early phases of analysis; documenting theoretical thoughts during individual data review and group discussions; researcher triangulation through coding reviews in Atlas.ti; vetting themes and sub-themes by team members; and clear documentation of all team meetings and peer debriefings [75].

4 Results Part 1: Emotionally-Salient Drivers to Instagram

We identified three kinds of emotionally-salient drivers that brought teens to Instagram: escape, engage, and manage the demands of the platform. In the following sections, we describe each type of driver and how it functioned as an emotion regulation strategy for teens.

4.1 Escape

Teens described different forms of escape-seeking that drove them to open Instagram. Most commonly, they sought to escape boredom–*"I don't usually think of opening Instagram unless I am bored"* (P15, non-binary, age 16)–and to fill empty time–*"I didn't have anything to do and just went on instagram"* (P46, girl, age 17). Sometimes, escape-seeking came in the form of procrastination, as P34 (boy, age 16) reported: *"I had things that needed to be done before a certain time but I put them off until last moment due to Instagram."* Similarly, P20 (girl, age 17) reflected:

> *"I use Instagram the most when I know I need to do something else, so I was really stressed about making a commitment on time and I could've easily put my phone down but I didn't do I was just like aaaaaaaaaaaaaaa cooking videos"*

Often when talking about these forms of escape-seeking (boredom, filling time, procrastination), teens described the drive to open Instagram as a reflexive action. For instance, P19 (girl, age 16) reported: *"...it almost feels like a reflex when I don't know what else to do or am procrastinating what I should be doing. I did see a cute dog though, so that was nice."* P32 (girl, age 16) expressed a similarly reflexive orientation to Instagram when she described her motivation for logging on: *"I didn't have any goal in mind and just kind of numbly opened the app."* P13 (boy, age 16) observed: *"It feels like an automatic action at this point if I don't use it I feel bored."* Here, we see that the boredom that drives P13 to open Instagram emanates from the habitual nature of his platform use; if he doesn't use it, something feels missing.

A more intentional form of escape-seeking was teens' use of Instagram to cope with stress in other parts of their lives. For instance, P40 (boy, age 15) reported using Instagram to distract himself from an approaching hurricane: *"I live in Southern California, and there is currently a hurricane sweeping through. Instagram helped me spend my time entertained, and the content made me feel positive."* P35 (girl, age 16) described using Instagram to change her mood on a day when she felt low: *"sometimes I would get sad and use Insta as a distraction."* Similarly, P39 (boy, age 17) observed: *"I was scrolling through reels and it really calmed me down after a stressful day."* In another entry, this participant observed that the relief he sought was not from stress but rather fatigue: *"School work made me tired, and Instagram was just a way to help me relax."* P28 (boy, age 17) reported a similar motive for opening Instagram: *"I was tired before because of a long day, so I just went on insta sometimes to chill."*

4.2 Engage

Teens described a variety of ways they sought more active engagement on Instagram, including to connect with friends, engage with information related to an interest, and engage in forms of self-work. With respect to connecting with friends, participants recorded instances of using Instagram to keep up with friends and acquaintances, catch up with friends after time spent apart, and as an opportunity to seek and give emotional support. P21 (girl, age 15) characterized Instagram as *"a way for me to keep up with friends and acquaintances and share my own personal experiences."* P12 (girl, age 16) observed how she was using Instagram to reconnect with friends after a summer apart: *"During the summer, I didn't communicate a whole lot with some of my friends, but with the upcoming school year, there was a reason to start up a conversation once again."* Sometimes, teens used Instagram *"to communicate my feelings with other people"* (P28, boy, age 17), or to reach out to a struggling friend: *"On my friend's behalf, sent them posts I knew they'd relate to but just isn't in a good situation right now"* (P11, transgender, age 17).

Several teens reported using Instagram to engage with an interest or passion. For example, P03 (girl, age 17) and P04 (girl/non-binary, age 17) each described using Instagram to keep up with their favorite TV shows, Love Island and Big Brother, respectively. P04 experienced a range of emotions (curious, excited, stressed,

nervous) as they sought information about the latest person to be eliminated from the show: *"Instagram had a huge impact on my day because of all the big brother news that was going, with a player being kicked off and my favorite player being saved."* P16 (girl, age 16), a soccer player and fan, went on Instagram to stay updated about a match between Spain and England: *"I kept checking it many times throughout the day, I really didn't want to miss any updates or anything."* Other interests that drove teens to Instagram included looking for recipes, skateboarding reels, and hair-dyeing methods.

Teens described a variety of ways they turned to Instagram to engage in self-work. Sometimes, self-work was internally focused, such as seeking inspiration or motivation, as P36 (boy, age 17) described: *"I watch reels and posts that motivate [me] to wake up early and do something active like exercise and studying."* P27 (age 17)[1] similarly sought inspiration on Instagram, though with a less precise focus: *"I am hopeful that I'll come across something new that'll inspire me to do something."* At other times, self-work was more externally focused and involved different forms of self-expression. P57 (girl, age 15) reported: *"I changed my profile picture because I wanted to rebrand myself."* P52 (girl, age 16) was driven to post on Instagram about her experiences at an internship event: *"I had a super busy work day for my internship and posted about the event! Today marked the first event of the school year, so I was happy to share it."* Although few details are provided, this entry indicates P52's excitement and possibly pride about sharing this personal experience with others on Instagram.

4.3 IG Management

Several teens alluded to feeling compelled to check Instagram in order to stay on top of the platform's demands. Sometimes, these demands were externally driven, coming in the form of platform notifications, as P40 (boy, age 15) reported: *"Instagram made me constantly check my notifications."* P19 (girl, age 16) observed the stress she feels when these notifications mount, even if the content itself is positive:

> *"I have a tendency to get stressed when I see lots of notifications, and they end up building up over time. Today I finally opened my DMs (which do consist entirely of memes my sibling send me). It's always nice seeing what they send but for some reason the amount of notifications can be overwhelming."*

P57 (girl, age 15) also reported feeling overwhelmed when *"Opening the app in general, there's just so many things on the screen, like stories, posts, and notifications for DMs and normal ones."* Similarly, P17 (girl, age 17) felt overwhelmed by *"the amount of posts,"* and P25 (girl, age 16) felt overwhelmed *"by all the stories I had not viewed."*

At other times, teens seemed to have internalized the platform's demands. For instance, some teens reported feeling like they were missing out in some way if they had not checked Instagram: *"When I don't use [Instagram] I feel like something is missing and that I need to be currently updated"* (P36, boy, age 17). P35 (girl, age 16) similarly reported: *"When I wasnt on Instagram sometimes I would get upset or have a longing to be on it."* P52 (girl, age 16) reflected:

> *"I just felt bored when I wasn't on Instagram. Not particularly "missing out", but remembering that one post that made me smile or that one post that made me laugh just made me want to click back on the app and scroll for another 2 hours."*

[1] P27 chose not to disclose their gender

4.4 Summary

Taken together, these three primary drivers to Instagram varied in distinct ways. *Escape-seeking* drivers were typically motivated by a reflexive desire to relieve boredom or fill time, although teens occasionally reported more intentional attempts to cope with stress by distracting themselves on Instagram. In contrast, *engagement-oriented* drivers were consistently more deliberate and included the desire to connect with friends, pursue an interest or passion, and engage in self-work. Lastly, the third driver to Instagram involved *managing the demands of the platform*, both external demands (push notifications) and internal demands (feeling that something is missing if they have not checked Instagram in a while).

5 Results Part 2: Behaviors on Instagram

We identified two types of behaviors that impacted teens' emotional experiences on Instagram: mindless diversions and deliberate acts. In the following sections, we describe each type of behavior and how it affected teens' emotional responses. This analysis illustrates those circumstances that make Instagram more and less effective in supporting teens' emotion regulation processes.

5.1 Mindless Diversions

Teens frequently reported scrolling through their feed without a specific purpose, encountering content such as *"funny animals"* (P02, girl, age 17), *"funny reels and memes"* (P35, girl, age 16), *"silly songs and trends"* (P30), *"disney reels"* (P45, non-binary, age 17), *"dogs doing stupid stuff"* (P34, boy, age 16), *"dogs in backpacks"* (P54, boy, age 14), *"a person baking chocolate chip cookies"* (P56, girl, age 15), and *"cool photos from photographers"* (P46, girl, age 17). Mindless diversions were often driven by an escape motive, such as filling time, procrastinating, or relieving stress, and they most often elicited a positive emotional response from teens. P38 (girl, age 17) felt calm *"just tapping through stories."* P24 (girl, age 17) felt content *"Just being able to scroll without interruptions."* P01 (girl, age 16) felt peaceful *"watching nature reels."* Some of the content teens encountered appeared to be intentionally designed to generate a positive mood, as illustrated by P36's (boy, age 17) entry: *"I was feeling serene because I watch good reels about self care and asmr that put me in a relaxation mood."* P35 (girl, age 16) reported feeling serene *"watching calming reels (i.e., "breathe with me" reels)."*

5.1.1 Fleeting (and Sometimes Longer Lasting) Mood Boosts.

Often, teens characterized the positive effects of mindless diversions as fleeting: *"To me, seeing those posts that made me happy was like eating some candy. It's great when you have it but then your done, you forget about that feeling and move on to other things"* (P55, girl, age 17). Similarly, P40 (boy, age 15) reflected: *"Some content made me feel good, but it was only temporary and for that post/reel."* P16 (girl, age 16) described such experiences as *"small happiness boosts."* Even on the rarer occasions when mindless diversions elicited a negative emotional response, the reaction appeared to be temporary, as when P31 (boy, age 13) recorded *"annoyance"* upon seeing *"just stupid teenagers doing stupid stuff."* He said that the annoyance had *"very little"* impact on the rest of his day.

Occasionally, mindless diversions could help set the tone for the rest of the day. For instance, P37 (girl, age 15) said of the flower videos she watched: *"It really set the mood for me today in the fact that I'm enjoying the plants and just appreciating life a little more."* P41 (girl, age 17) explained that she curates her feed deliberately to help put her in a good mood: *"It impacted my day greatly, I follow positive things so it leads to me seeing positive people/fun things that brighten up my day."* When weighing the positive and negative content she saw on Instagram, P22 (girl, age 17) determined that the net effect was positive: *"today, the good things balanced out with the bad and kept my emotion stable."*

5.1.2 To Boost or Not To Boost. Whether or not mindless diversions had a positive emotional effect depended in part on what drove teens to open Instagram. For instance, boredom as a motivator often resulted in more boredom, as P54 (boy, age 14) described: *"It may have made the time go by quicker but other than that, I still was bored…I was bored beforehand and Instagram really didn't cure it."* Similarly, P46 (girl, age 17) reflected: *"I didn't have anything to do, so I just scrolled because I was bored, but maybe one out of 10 videos was interesting, which made me even more bored."* However, filling a well-defined space of time, such as during a commute, was often experienced differently, as P28 (boy, age 17) explained: *"I was commuting a lot today so using the app helped keep me entertained."*

There was also a distinction between using mindless diversions to procrastinate versus as a reward or quick "brain break." Having recently started a new school year, P48 (girl, age 17) explained: *"I felt a sense of relief while on Instagram as I was able to give my brain a break."* In contrast these quick breaks, going on Instagram to procrastinate from a task consistently resulted in negative feelings such as stress and guilt. P20 (girl, age 17) reflected: *"I use Instagram the most when I know I need to do something else, so I was really stressed."* P37 (girl, age 15) reported feeling *"guilty because instead of watching those videos and wasting my time I could've been working a spanish project I have to do."* In her next entry, however, P37 had finished her Spanish project and was using Instagram as a reward for completing her work: *"I felt joyful because I was enjoying my time relaxing and watching some videos."*

5.1.3 From Mindless Diversions to Mindless Scrolling. Even when mindless diversions produced positive emotional effects, participants' diary entries rarely consisted solely of such experiences. For many teens, what may have started as a mindless diversion could easily morph into mindless scrolling that lasted far longer than they had intended. Participants described feeling "addicted" to Instagram as the act of scrolling itself took over and the content faded into the background. At the start of one diary entry, for instance, P35 (girl, age 16) reported feeling "amused" and "silly" while *"Watching funny reels"*, but ended the same entry feeling "addicted" from *"not being able to stop watching reels."* Mindless scrolling was most often expressed as a loss of self-control: *"I couldn't break away from scrolling through reels."* (P08, girl, age 17). P52 (girl, age 16) explained why she felt addicted at the end of a day that featured a high level of Instagram use: *"Today was a lazy day for the whole family and I spent quite a bit of time scrolling on Instagram. Scrolling paralysis is very real and sometimes I feel like I can't tear my eyes off of my phone."*

For P52, like for many other teens in the study, a sense of shame and self-blame accompanied the feeling of being unable to stop scrolling: *"I feel very self-conscious and almost ashamed that I'm not putting my time towards something more productive."* The inverse of this feeling was the satisfaction and pride teens reported when they managed to spend less time on Instagram: *"I felt proud because I wasn't on Instagram all day, I was determined today to be productive and focus on school"* (P47, girl, age 16). P21 (girl, age 15) said she felt "serene" due to *"Not feeling bad about my social media use because I don't feel like I was unproductive as a result of spending too much time on it."* Similarly, P27 (age 17) reflected: *"My Instagram usage was very low today, so it did not make me feel guilty/ashamed."* These quotes illustrate teens' daily struggle to resist mindless social media use and the feelings of shame and guilt that accompany the failure to live up to their productivity ideals.

5.1.4 When Variable Triggers Disrupt Mindless Diversions. Besides devolving into mindless scrolling, mindless diversions could also be thrown off course when teens encountered sudden, triggering content on their feed. Sometimes, this content involved current events, as when P21 (girl, age 15) reported feeling "downhearted" after *"I stumbled across some reels that briefly discussed war crimes that the US had committed and it made me feel a little too introspective about things that are out of my control."* P22 (girl, age 17) felt the same emotion when *"I saw a News post about the amount of people who have died due to wildfires around the United States as well as other countries."* P19 (girl, age 16) spoke more generally about feeling "stressed" after *"Seeing stuff from the news - strikes, climate things, etc."* Other triggering content included gun violence, the war in Ukraine, and legislation affecting LGBTQ+ and abortion rights. Part of the jarring nature of such content was the suddenness with which teens encountered it.

Often, triggering content struck a more personal chord for teens, such as posts that reminded them about the upcoming school year or college applications. P55 (girl, age 17) reported: *"I felt nervous seeing posts from my school about coming back to school because I feel nervous about doing well in some of my senior classes."* P12 (girl, age 16) reflected: *"Many videos surrounding the topic of college and applications for college begin to stress me out."* Sometimes, triggering content was associated with friends' posts. P09 (girl, age 17) said she felt "inferior" as a result of *"Seeing my friends have fun."* P19 (girl, age 16) reflected: *"seeing other people summers always makes me a little jealous. It seems like everyone else is thriving and I'm just chilling at home."* P10 (non-binary, age 17) also felt jealous after coming across *"posts about things my friends were doing without me."* Similarly, P25 (girl, age 16) was "annoyed" when *"I saw a story of my friends hanging out and I knew nothing of it so i felt a little left out."* P45 (non-binary, age 17) felt "insecure" when they looked at *"my mutual friends posts because theyre so pretty."*

It is difficult to know from our data how triggering content affected teens emotionally beyond the encounter they recorded. We did see some evidence that the impact pervaded their day, if not longer. P27 (age 17) reported that Instagram had a large impact on the rest of their day after they stumbled across *"disturbing content (death, triggering topics),"* explaining that *"It made me feel a lot more overwhelmed and made me want to use my phone more."* However, several participants made a point of noting that they do not let

Instagram affect them outside of their experience on the platform: *"I just keep instagram separate from reality"* (P49, girl, age 15). Similarly, P22 (girl, age 17) commented: *"I usually get on Instagram after school and I feel like you go through so many emotions scrolling through Instagram, that you learn to not let it affect you for the rest of the day."* In response to a prompt asking if anything had stood out to her that day on Instagram, P29 (girl, age 15) wrote: *"nope, just another day of hate."* Comments such as this last one suggest that teens approach their encounters with triggering content with a level of resignation and emotional dissociation.

5.1.5 Summary of Mindless Diversions. Overall, the mindless diversions reported in 5.1 were typically motivated by an escapist desire and resulted in positive, fleeting emotions. At the same time, the positive aspects of mindless diversions could easily be disrupted. Teens sometimes felt triggered by unexpectedly encountering upsetting content in their feed, and they reported feelings of guilt and shame if they allowed their mindless diversions to slip into mindless scrolling. Sometimes, mindless diversions could have a more lasting effect by setting the tone for the rest of a teen's day, whether good or bad.

5.2 Deliberate Acts

Deliberate acts typically followed an intentional decision to open Instagram for the purpose of active engagement. Thus, these behaviors align with the engagement drivers discussed in Section 4.2 (e.g., connect with friends, pursue an interest or passion, engage in self-work). Here, we focus on the experiences teens reported once they opened Instagram, including the emotional effects. As they did with mindless diversions, teens more often reported positive emotions in conjunction with deliberate acts such as communicating with friends and making posts. However, deliberate acts were considerably more likely to engender self-actualizing emotions (e.g., "grateful," "proud," "closeness," "trust") than the fleeting mood boosters (e.g., "silly," "amused," "quick joy") that typically resulted from mindless diversions.

5.2.1 Direct and Ambient Co-Regulation. Sending and receiving messages from friends commonly produced feelings such as "closeness," "love," "thankful," and "trust." P08 (girl, age 17) reflected: *"When I was talking to my friends in the group chat setting I felt like we were talking with each other in person and it made me feel really close and connected with them."* As teens used Instagram to connect with friends, they described ways in which friends impacted each other's emotions. Sometimes, teens reached out to friends explicitly for emotional support, as P49 (girl, age 15) did when she was having problems with her mother: *"I was angry because of my mom and was venting to my friend."* She then recorded feeling "peaceful" and "encouraged," explaining: *"I had lots of good conversations today that made me feel peaceful"* and *"I was encouraged by a pep talk my friends said to me in dms."*

Some teens described the emotional work that went into supporting friends who were struggling. In one entry, P45 (non-binary, age 17) reported: *"a friend of mine posted very sad stories and possibly hinting self harm."* They went on to report feeling "overwhelmed" when *"after looking at her posts i texted her asking if she was okay and she didnt respond for a while."* Next, they reported feeling "nervous" and explained: *"i was worried because she took too long to respond so i called her and was worried she wouldnt pick up but she did so it took a weight off my shoulders."* Talking with their friend made P45 feel "optimistic" because *"i was glad she was okay and i talked to her and tried to distract her from whatever was making her sad."* They then reported feeling "hopeful" because *"she said she was going to get help."* This entry concluded with P45 recording feeling "alert" as a result of *"seeing those post i am more alert of what else other people post because it wont hurt to make sure theyre okay."*

Co-regulation with friends did not always involve deep, one-on-one conversations. Sometimes, exchanges resembled mindless diversions as friends sent each other funny memes and reels: *"I felt amused when looking at the videos my best friend was sending me, we often share videos (reels) with each other"* (P14, girl, age 17). Teens also recorded ways that friends influenced each other's emotions more indirectly as they engaged with their posts. P41 (girl, age 17) felt "peaceful" when *"I saw a peaceful song that my friend created and she shared it on instagram."* P36 (boy, age 17) felt "glad" as he was *"Looking at friend's photos on instagram with their girlfriend, enjoying life, traveling, etc made me feel glad."* Sometimes, these 'ambient' forms of co-regulation could help teens down-regulate arousing emotions such as stress and fear. Looking through friends' posts, P45 (non-binary, age 17) was reminded of their final year of high school: *"Seniors were talking about the last first day of school and that put me into perspective that this is my last year in high school."* As a result, they reported: *"I am much more calm and less stressed for this upcoming year."* Ambient forms of co-regulation also occurred when teens used Instagram to look back and reminisce. For instance, P41 felt "grateful" when *"looking at photos of me and my bestie."*

5.2.2 Inspiring Versus Defeatist Content. As teens used Instagram to connect with and pursue their interests, they often came across aspirational content. Sometimes, they came across such content accidentally while scrolling, such as when they discovered books they wanted to read, or recipes, workouts, and dance moves they wanted to try. Other times, teens deliberately sought out aspirational content related to an interest or passion. Most commonly, aspirational content elicited self-actualizing emotions such as "encouraged," "inspired," and "self-assured." P12 (girl, age 16) felt inspired after *"I watched cooking videos and actually tried to make one today."* P20 (girl, age17) also felt inspired by content related to her interest in dance: *"I was really inspired looking at potential college dance teams on Instagram; I love watching content and imagining the kinds of things I could do in the future."* P16 (girl, age 16), a soccer fan and player, explained how engaging with soccer-related content on Instagram impacted her for the rest of the day:

> *"Watching the updates from the Spanish soccer team made me feel really happy throughout the day, it basically gave me a boost of happiness. And when I went to soccer practice and was feeling tired and lazy I remembered their posts and decided to continue practicing and trying my best because I hope to become like them some day."*

Less frequently (about half as often), teens felt discouraged by the aspirational content they came across on Instagram, believing they could not live up to the standards they saw online. P50 (boy,

age 16), who had an interest in graphic design, felt "inferior" when looking at the work of *“some professional graphic designer so i felt like i wasn’t as good.”* He also felt "overwhelmed" as he contemplated *“so much to improve in my graphic designing journey.”* Feelings of discouragement and jealousy most often related to encountering body-related content. P02 (girl, age 17) felt "self-conscious" when she saw *“A New York girl who is the epitome of my goal body appearance.”* P08 (girl, age 17) reported: *“I felt a little bit jealous while watching a workout routine and seeing the girl’s body, she was very pretty and had a nice shape and it made me a little mad that I didn’t have a body like that.”* Boys reported similar feelings of insecurity when engaging with body-related content. For instance, P34 (boy, age 16) felt insecure *“Seeing gym content of other dudes showcasing their peak body.”* P23 (boy, age 17) also felt insecure when engaging with *“Gym and physique content.”*

5.2.3 The Work and Reward of Self-Expression. Compared to other deliberate acts such as engaging with friends and interest-related content, a relatively smaller number of teen participants (19/57, or 33%) reported posting behaviors such as sharing a story or uploading a selfie. When their posts received positive attention from friends, teens reported self-actualizing emotions, such as P22 (girl, age 17), who felt "uplifted" when *“I made a Post and many people commented positive things.”* After making a post with her boyfriend, P21 (girl, age 15) reported: *“Seeing more likes on my post made me feel happy, like the people I know accept and support my relationship.”*

Acts of self-expression could also elicit negative emotions due to the vulnerability associated with being judged by others. P26 (girl, age 17), who put considerable effort into preparing and monitoring the reactions to her posts, recorded a range of emotions accompanying her posting behaviors. In one diary entry, she reported feeling "self-conscious" when recording vlogs: *“I was recording vlogs on my instagram and I noticed I was self conscious of how I looked and I kept recording the videos over and over. I also took time to pick the perfect filter for my face.”* The next day, she felt "overwhelmed" because *“I uploaded a touching information on my story and I kept getting notifications and this overwhelmed me as I didn’t know if the texts and feedbacks I was getting were criticism or not.”* The day after that, however, she reported feeling "grateful" when *“I posted a story of me and my siblings and a lot of people interacted with it and that made me feel grateful to them.”* On the same day, P26 also felt "uplifted" because of *“People liking my story and sending heart emojis to my selfie uplifted me and made me less insecure about my face.”* This range of emotions expressed by one teen over a three-day period illustrates the intertwining of personal characteristics (e.g., self-esteem), platform features and demands (e.g., filters, notifications), and social context (e.g., friends’ responses).

5.2.4 Summary of Deliberate Acts. In contrast to mindless diversions, the deliberate acts described in 5.2 were more intentional in nature and more likely to evoke self-actualizing emotions such as gratitude, pride, and trust. Such feelings arose in the context of connecting with friends, encountering aspirational content, and making posts. Teens described instances of co-regulating their emotions with friends, both directly and in a more ambient way as they scrolled through their friends’ feeds. These instances of emotional co-regulation were typically characterized positively, but some teens reflected on the stress associated with supporting a struggling friend. Teens also reported instances of feeling discouraged by aspirational content they encountered, as well as feelings of vulnerability as they waited for and anticipated reactions to their posts.

6 Discussion

Our analysis of 371 diary entries ($M_{responses}$= 6.5, sd=0.97, min=4, max=9) recorded by 57 US teens (M_{age}= 16.3 years) provides a granular view of adolescents’ emotionally-salient experiences on Instagram, including the proximal causes and consequences of regulating emotions on Instagram and the role of design in shaping these ER processes. This study contributes new insight into the temporal arc of teens’ ER processes on Instagram, from motivation to emotional response, building on prior work investigating teens’ use of social media for ER (e.g., [12, 19, 62, 91, 92, 112]). We also expand HCI research on digital emotion regulation (e.g., [93, 95, 106, 107]) by focusing on a specific developmental period–adolescence–during which ER abilities are still developing; individuals are experiencing a variety of physical, social, academic, and cognitive changes and challenges; and responses to social situations are typically accompanied by heightened emotional reactivity [37, 65]. The insights discussed in the following sections contribute to our understanding of the conditions under which social media supports versus undermines teens’ mental health, and can inform interventions, policies, and designs intended to support teens’ positive emotional experiences with social media.

6.1 A Model of Adolescents’ ER Processes on Instagram

We identified three themes related to teens’ experiences with emotionally-salient drivers to Instagram: escape, engage, and IG management. We further identified two themes related to behaviors associated with emotional experiences: mindless diversions and deliberate acts. Teens’ emotional responses to their Instagram experiences ranged from positive feelings of self-actualization to negative feelings of self-doubt and unease, and included many fleeting feelings of pleasure and some displeasure. Figure 2 brings together the findings reported in Sections 4 and 5 to show the relationship between these drivers, behaviors, and emotional responses. We can use this figure to identify pathways that support more and less adaptive forms of ER on Instagram, as well as instances when ER processes are thrown off course.

6.1.1 Adaptive Pathways. Teens sometimes turned to Instagram with the desire to escape stressors in their daily lives (driver). By engaging with mindless diversions such as funny memes, appealing photos, and entertaining reels (behavior), they were able to lower their stress as they experienced a boost to their mood (emotional response). This sequence aligns with prior work showing the effectiveness of distraction as an ER strategy to down-regulate negative emotions [20, 36] and is consistent with prior work on digital emotion regulation in adults (e.g., [95]).

Another adaptive pathway involved more deliberate acts of engagement and was associated with self-actualizing emotions such as gratitude, confidence, inspiration, and trust. This pathway aligns with prior work exploring how ER strategies can be used to trigger positive emotions [37, 38, 98]. For example, the desire to engage

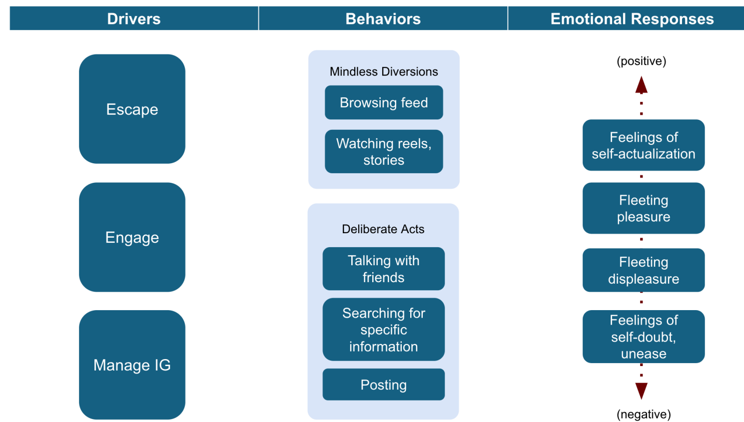

Figure 2: A model of adolescents' ER processes on Instagram.

with friends was a strong driver to open Instagram, and teens mostly described positive feelings as a result of communicating with their friends. The self-actualizing emotions they reported, such as love, closeness, and trust, stood in contrast to the more fleeting positive emotions (amused, silly) they derived from mindless diversions.

Teens' diary entries also showed how friends used Instagram to co-regulate their emotions. Participants engaged in direct co-regulation, which typically occurred through one-on-one and group chats and resembled offline forms of co-regulation documented in psychological literature [85, 88]. We also identified more 'ambient' forms of co-regulation that occurred as teens scrolled through their feed and encountered friends' posts. These encounters often (though not always) engendered positive emotions as teens saw their friends sharing their accomplishments, experiences, and creations. This more indirect form of co-regulation illustrates how the affordances of social media (e.g., asynchronicity, publicness) can shape teens' ER processes in distinct ways. Although we did not see strong evidence of co-rumination [85, 88], some teens did describe the emotional work involved in supporting a struggling friend. Consistent with prior research (e.g., [73, 110]), the always-on nature of mobile social media seemed to magnify this work.

6.1.2 Less Adaptive Pathways. Some ER pathways were less adaptive. For example, teens who turned to Instagram to escape boredom consistently reported feeling just as bored, or even more so, after their time on the platform. The low-energy state with which they entered the platform seemed to facilitate their easy slide into mindless scrolling, itself a low-energy, reflexive action. This pathway aligns with prior work showing teens' experiences of 'boredom in, boredom out' on Instagram [59]. It also illustrates how teens' personal motivations (e.g., relieve boredom) interacted with platform features (e.g., infinite scroll) to produce an emotional response (more boredom) [27]. Another escape-seeking driver to Instagram, procrastination, was similarly part of a negative ER pathway. Consistent with psychological literature showing the maladaptiveness of avoidance-based ER strategies [4, 36], teens who turned to Instagram to procrastinate typically left feeling greater stress after a lengthy time of mindless scrolling.

Managing the demands of the platform created a distinct set of ER pathways. Several teens described being driven to Instagram to relieve the stress of mounting notifications and the anticipation of their content, a finding echoed in a prior study showing that teens receive a median of 237 notifications per day from social media platforms [81]. The stress of anticipation was particularly high after teens made a post, as they wondered and worried about how it would be received by their friends. The only way they could relieve this stress was to open Instagram and check their notifications, which could result in a variety of emotions depending on the content they found. Although adults also feel stress when monitoring their social media feeds [5, 44], this stress is likely magnified for teens due to their heightened sensitivity to social feedback [46, 65, 96, 97]. Teens also described more internally-driven feelings of needing to manage Instagram, saying that they felt like something was missing if they did not check in for a day or more. The act of checking and managing the platform functioned as a mood stabilizer, but one that could be thrown off course by negative reactions from friends. These dynamics underscore what an emotionally salient context social media has become for teens [27, 110].

6.1.3 Disruptions to ER Pathways. We also saw how easily adaptive ER pathways could be disrupted. Mindless diversions frequently turned into mindless scrolling as teens lost track of time and felt unable to control their scrolling behaviors [10, 62, 103]. This shift from experiencing a beneficial mood boost to dysregulated behavior undermines the potential benefits of Instagram as an ER tool. Indeed, absent-minded smartphone use has been linked to higher depression, anxiety, stress, and negative affect as well as lower positive affect and flow [63]. Such experiences go beyond ER and tap into the broader construct of self regulation, which includes not only emotion, but also attention and other behaviors [64]. Thus, while social media might confer some benefits to ER for teens, design features that promote reflexive behaviors pose challenges to teens' still-developing cognitive control capacities.

Another type of disruption resulted from the unpredictability of teens' Instagram feeds. This meant that a relaxing scroll through amusing reels could quickly and unexpectedly induce negative

emotions–some fleeting, others more impactful–if they came across triggering content such as upsetting news events or body-related content that made them feel insecure (see [23]). This unpredictability also meant that a casual scroll could turn into something more meaningful if teens came across inspiring or motivational content. Overall, the ease with which ER pathways could be disrupted on Instagram shows the platform to be an unreliable tool for ER, especially for teens who are still developing their ER skills and who exhibit regulatory vulnerabilities related to social situations [96, 97].

6.2 Design Considerations for Supporting Teens' ER Processes on Instagram

Figure 3 uses two axes to organize teens' emotionally-salient experiences on Instagram. The x-axis shows a continuum from negative (left) to positive (right) emotions, and the y-axis progresses from meaningless (bottom) to meaningful (top) experiences. The four quadrants depict the main types of emotional experiences we identified in our analysis. We use this figure to explore design considerations for supporting teens' ER processes on social media.

6.2.1 Design for Both Mindless Diversions and Deliberate Acts. There is a growing body of work in HCI that explores designing to support people's meaningful technology interactions, including with social media (e.g., [60, 61, 66, 69, 80, 100, 114]. Within the sub-field of child-computer interaction (CCI), Davis *et al.* [28] demonstrated how teens' intentional social media use could be encouraged using design features that promote goal-setting, reflection, planning, and self-monitoring. These efforts seek to maximize the upper right quadrant of Figure 3, and the current investigation affirms that such a focus is valuable for the purposes of supporting teens' ER. However, our analysis also suggests there is value in expanding the focus of design to include the bottom right quadrant, the location of mindless diversions, since teens derive emotional benefits from using social media to relax after a busy day or distract themselves from a stressful experience. We see an opportunity for social media platforms to allow teens (and other users) to indicate to the platform what kind of experience they are seeking, a mindless diversion or a more meaningful engagement, and shape the experience they go on to have accordingly. If they opt for a mindless diversion, measures should be taken to minimize the likelihood of slipping into mindless scrolling, such as the design frictions discussed by [86].

6.2.2 Support In-Situ ER Strategies. Our analysis showed how teens frequently encountered content that sent them spiraling into the top lefthand quadrant. This was particularly true when engaging with friends' content. Seeing friends having fun without them, looking better than they felt themselves, or otherwise thriving in enviable ways represented forms of digital stress [43] that engendered feelings of self-doubt, discouragement, and jealousy. As already discussed (see 6.1.3), teens are particularly vulnerable to these socially-induced stressors, and the publicness of social media only heightens this vulnerability. There are currently school-focused efforts to help teens develop positive ER strategies such as cognitive reappraisal to cope with the digital stress they experience on social media (e.g., [111]). Following other HCI researchers (e.g., [56, 94]), we see opportunity in exploring the use of interaction design to provide in-situ support for teens' adaptive ER strategies. In contrast to psycho-educational approaches that are temporally distant from teens' social media experiences, this type of just-in-time intervention has the advantage of appearing at the moment when it is most needed [94].

6.2.3 Reduce the Work of Managing Platform Demands. The teens in our study described the considerable emotional labor involved in managing platform demands. Consistent with prior research [27, 81, 110], our analysis showed that notifications, which are frequently tied to tagging, commenting, and liking behaviors, were a particular source of anxiety and stress. To help teens shift and remain more consistently in the righthand quadrants of Figure 3, we join researchers and policymakers in calling for a change to the default settings of social media platforms [2, 9], starting with disabling notifications by default. Over time, this change would help to recalibrate the social norms and expectations that have developed around always-on mobile social media use [5, 28, 44, 110]. We recognize that disabling notifications by default is not aligned with the bottom line of social media companies and that such changes will likely need to be compelled by government policies. Recently passed legislation has shown that tech companies can be required to make meaningful changes and alter the calculus of their bottom line by taking user well-being into account [32].

7 Limitations and Future Research

Despite the strengths of the current study, some limitations should be considered. Although we prepared teen participants to tune into their emotional responses to Instagram by engaging them in an orientation on affective labeling at the start of the study, we still encountered challenges similar to those faced by others researchers studying digital emotion regulation in the wild (e.g., [95]). For one, the implicit nature of many ER processes can make it difficult for people to report on them even if they are attuned to their emotions [40, 58]. Further, as Tag *et al.* [98] observed, self-report methods can disrupt the naturalism of the experience, and even daily surveys, though more granular than a one-off survey or interview, still offer a relatively limited level of detail regarding participants' moment-by-moment experiences.

In addition, although Instagram continues to be one of the most popular social media platforms among US teens [7], we know that teens typically interact with multiple platforms on any given day [7, 81]. By focusing on a single platform, we were able to provide an in-depth view of ER processes on Instagram, but we were unable to place this understanding in the broader context of teens' social media ecology. We recommend that future research investigate how ER processes operate the same or differently for teens across social media platforms, as well as how site-specific dynamics interact with and influence each other. As our sample was limited to US teens, we also recommend that future research examine cross-cultural similarities and differences in teens' use of social media as an ER tool, including what these processes look like and their outcomes on mental health. Future research could also explore how neurodivergent teens and teens with various disabilities use social media to regulate their emotions and with what effects.

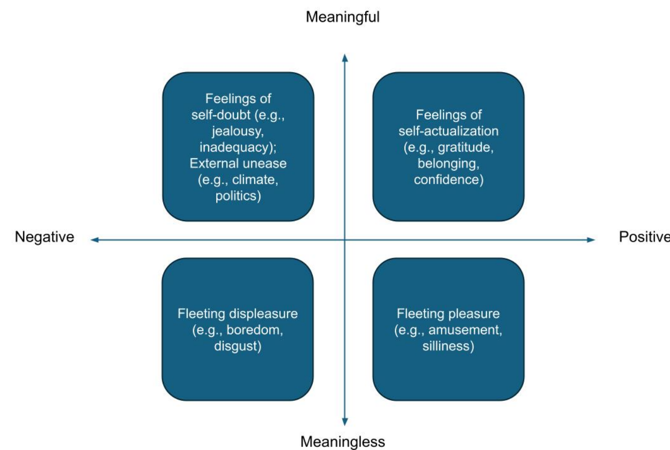

Figure 3: Teens' emotionally-salient experiences on Instagram, organized by meaningfulness and valence.

8 Conclusion

Although some studies have started to consider the role of social media in ER for teens, most research has not yet considered (1) emotional drivers to social media, and (2) specific behaviors on social media that can impact teens' emotional experiences. These processes might be underlying mechanisms involved in the relationship between social media and internalizing psychopathology such as depression and anxiety disorders. The current study reports on findings from a diary study investigating how teens (N=57, M_{age}= 16.3 years) used Instagram to regulate their emotions. We identified three kinds of emotionally-salient drivers that brought teens to Instagram and two types of behaviors that impacted their emotional experiences on the platform. Teens described going to Instagram to escape, to engage, and to manage the demands of the platform. Once on Instagram, their primary behaviors consisted of mindless diversions and deliberate acts. Although teens reported many positive emotional responses, the variety, unpredictability, and habitual nature of their experiences revealed Instagram to be an unreliable tool for emotion regulation. The insights from this work contribute to our understanding of the conditions under which social media supports versus undermines teens' mental health, and can inform interventions, policies, and designs intended to support teens' positive emotional experiences with social media.

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A Appendix

A.1 Daily Survey Questions for iOS Instagram Users

1. Please enter your participant ID (found in your email!)

2. How often did you check Instagram today?

For example, if you checked Instagram once today, please enter [1] below.

If you checked Instagram twice, please fill in [2] below, and so on.

o Number of times I checked Instagram:

3. For how long did you use Instagram today?

For example, if you spent about a half-hour on Instagram, you would fill out the boxes like this: [0] Hours [30] Minutes.

If you spent about two hours on it, you would fill out the boxes like this: [2] Hours [0] Minutes.

If you spent about an hour and 15 minutes on it, you would fill out the boxes like this: [1] Hours [15] Minutes. If you spent no time yesterday on it, you would fill out the boxes like this: [0] hours [0] minutes.

o Hours: o Minutes:

4. What features were you interacting with on Instagram today? [Select all that apply]

- Post
- Short video (e.g. Reels)
- Live
- 1:1 messaging
- Group chat
- My profile
- Friend’s profile
- Friend’s followers/friends list
- Feed from content with non-friends (e.g.Discover)
- Other

4.1 [Question displayed if they selected "Other"] If you selected "other", please describe below what you did on Instagram today:

5. How were you interacting with those features on Instagram: [Select all that apply]

- Checking
- Creating/writing
- Sharing
- Saving
- Commenting
- Liking
- Editing
- Deleting
- Messaging
- Scrolling
- Other

5.1 [Question displayed if they selected "Other"] If you selected "other", please describe below how you were interacting with Instagram today:

6. Did anything stand out to you today from your Instagram use? Please describe what stood out and why.

7. What emotions do you recall feeling while using Instagram today? List all the emotions you recall feeling.

Space for emotion 1: Space for emotion 2: Space for emotion 3: Space for emotion 4: Space for emotion 5: Space for emotion 6:

7.1 [Question displayed if space for emotion 1 was not empty.] As best you can, please describe what you were looking at/doing on Instagram to make you feel emotion 1.

7.2 [Question displayed if space for emotion 2 was not empty.] As best you can, please describe what you were looking at/doing on Instagram to make you feel emotion 2.

7.3 [Question displayed if space for emotion 3 was not empty.] As best you can, please describe what you were looking at/doing on Instagram to make you feel emotion 3.

7.4 [Question displayed if space for emotion 4 was not empty.] As best you can, please describe what you were looking at/doing on Instagram to make you feel emotion 4.

7.5 [Question displayed if space for emotion 5 was not empty.] As best you can, please describe what you were looking at/doing on Instagram to make you feel emotion 5.

7.6 [Question displayed if space for emotion 6 was not empty.] As best you can, please describe what you were looking at/doing on Instagram to make you feel emotion 6.

8. How, if at all, do you think your use of Instagram impacted how you felt during the rest of the day, when not using Instagram?

- 1: Very little
- 2
- 3: Neutral
- 4
- 5: Very much

9. Please explain how your use of Instagram did or didn’t impact how you felt during the rest of the day, when not using Instagram.

10. Are you willing to talk through the responses above with the research team during your individual interview session?

- Yes
- No

A.2 Final Coding Scheme

Theme	Sub-Theme	Code
Motivation to open IG	Escape	Escape boredom
		Fill Empty Time
		Procrastination
		Driven by habitual patterns of behavior
		Cope with IRL stress
		Distraction
	Engage	Connect with friends
		Seek information related to interests
		Seeking inspiration or motivation
		Self Expression
	IG management	Respond to platform notification
		Keep up with IG activity
		Stave off FOMO
Experiences on IG	Mindless diversions	Engage with escapist & entertaining content
		Morphing into mindless scrolling
		Disrupted by triggering content
	Deliberate acts	Direct co-regulation with friends
		Ambient co-regulation with friends
		Aspirational or inspirational content
		Aspirational or defeatists content
		Acts of self-expresssion
Emotional effects	High/increasing arousal	
	Low/decreasing arousal	
	Positive valence	Self-actualizing, sustaining
		Fleeting
	Negative valence	
	Mixed or ambiguous valence	

Table 2: Code Table