Social Media Mindsets:

A New Approach to Understanding Social Media Use & Psychological Well-Being

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Abstract

Social media mindsets are the core beliefs that orient individuals' expectations, behaviors, attributions and goals about social media's role in their lives. In four survey studies ($N = 2,179$), we show people hold distinct mindsets about the amount of agency they have over their social media use ("in control" vs. "out of control") and the valence of its effects ("enhancing" vs. "harmful") that are meaningfully related to psychological well-being. We develop and apply the Social Media Mindsets scale, revealing that agentic, positive mindsets are associated with better well-being and low-agency, negative mindsets are associated with worse well-being (Studies 1, 2a, and 2b). Notably, these mindsets explained more variance in relational well-being and psychological distress than other measures (Study 3), and were related to differences in how people used social media and interpreted the time they spent on it (Studies 3-4). Our findings introduce a novel potential explanation for heterogeneous social media effects on well-being.

Keywords: social media, mindsets, psychological well-being, technology, agency, self-control

Lay Summary

People hold strong, core assumptions about the role of social media in their lives. These *mindsets* organize how people think about the amount of agency they have over their social media use ("Am I in control of my social media use, or is it controlling me?") and the valence of its effects in their lives ("Is social media beneficial or harmful for me?"). Our studies indicate that these mindsets are associated with psychological well-being. While people who viewed social media as a tool they could leverage to pursue personally meaningful activities (i.e., a high-agency, positive mindset) had stronger social relationships and less psychological distress, people who saw social media as a harmful dependency (i.e., a low-agency, negative mindset) experienced more depression, stress, and anxiety. In addition, social media mindsets were associated with the ways that people interpreted the time they spent on social media and how they used it. Our findings indicate that future research on social media and psychological well-being may benefit from complementing existing measures of the amount, frequency, and type of social media use with assessments of individuals' mindsets about their social media use.

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"The technologies we use have turned into compulsions, if not full-fledged addictions."-Nir Eyal

"Social media is a tool. At the end of the day, tools don't control us. We control them."-Barack Obama

Since social media has become a mainstay of modern communication, people have struggled to understand what to make of its role in their lives. While some believe social media can be leveraged as a tool to improve connection at scale, others fear that our recurrent use has become a dependency that undermines our autonomy. Indeed, one of the most dominant concerns about technology revolves around how social media affects psychological well-being. Scholars, technologists, and policymakers alike have raised concerns about the potential for social media to exacerbate depression (Twenge et al., 2018), increase anxiety (Wells et al., 2021), and cause addiction to devices (Brailovskaia et al, 2021; Klobuchar & Remmings, 2022). For example, teen depression and suicidality track with increases in social media use, suggesting that social media may be harming young people on a massive scale (Haidt, 2021). In the policy sphere, congressional hearings have been convened to investigate the effects of social media on mental health (Kang, 2021), catalyzed by the release of internal Facebook documents that indicated the platform worsened youth mental illness (Wells et al., 2021). These fears also permeate families: the majority of American parents today feel worried about the psychological consequences of their children spending too much time on their devices (Auxier et al., 2021).

Findings from the academic literature on the effects of social media on psychological well-being, however, are decidedly more mixed. First, drawing on Houben et al. (2015), we operationalize psychological well-being as a broad construct that encompasses positive

indicators like eudaimonic well-being (e.g., life satisfaction; Diener et al., 2002) and social well-being (e.g., perceived social support, Keyes et al., 2002), as well as negative indicators of psychological distress (e.g., anxiety, stress, depression). Some studies appear to corroborate the fears people have, finding that individuals who use social media more often can become more depressed (for a review see Cunningham et al., 2021) and psychologically distressed overall (for a review, see Keles et al., 2020). These negative effects appear to be particularly pronounced among people who feel their use is out of their control (for a review, see Sohn et al., 2019). However, recent examinations of large, nationally representative datasets challenge the notion that social media is as harmful as often purported (Orben & Pryzylbylski, 2019; Vuorre et al., 2021). Instead, they indicate that digital technology use explains minimal variation in well-being – less than the influence of other important factors such as sleep, diet, and exercise (Orben & Przylbylski, 2019). Recent meta-analyses (Odgers & Jensen, 2020; Hancock et al., 202; Meier & Reinecke, 2022) consistently find small, mixed effects of social media use on well-being. In fact, these meta-analyses highlight that social media use can also enhance well-being by strengthening relationships and connecting individuals to communities of people like them (Minihan et al., 2021).

An emerging line of research that may help resolve these mixed findings focuses on accounting for heterogeneous social media effects. Like many other psychological phenomena, the effect of social media use on psychological well-being is complex and should be influenced by individual differences (Bayer et al., 2020). Indeed, growing research demonstrates that effects vary substantially from person to person (Beyens et al., 2021; Valkenburg et al., 2021a). When considering the influence of social media use on affective well-being, for example, Beyens et al. (2021) found that engaging with social media improved well-being for 26% of adolescents,

harmed well-being in another 28%, and did not influence the well-being of 45%. While similar patterns have been observed with regard to the effects of social media on self-esteem (Valkenburg et al., 2021b), relational closeness (Pouwels et al., 2021), and envy (Schreurs et al., 2022), it is still unclear what factors are driving these between-person differences.

One important individual difference that may explain these heterogeneous social media effects is mindsets. These strong, core beliefs function as implicit theories about "the way the world works," orienting people toward particular sets of attributions and expectations about important parts of their lives like intelligence, (Dweck, 2006), stress (Crum et al. 2017), and illness (Heathcote et al., 2020). As social media systems become increasingly integrated into our personal and social lives, people may come to hold similarly strong beliefs about the nature and meaning of their own social media use. As evidenced by the animated discourse surrounding social media's effects, and in the quotes above, people often understand social media to be either a tool they can use to achieve meaningful goals or a harmful compulsion akin to an addiction. Recent research reflects these patterns, finding that people's orientations towards social media are driven by core beliefs about the amount of agency they feel they have over their use of social media ("Is social media something that I can control, or something that controls me?"), and the perceived valence of social media's effect on their lives ("Are the effects of using social media enhancing or harmful for me?") (Lee et al., 2021).

If these beliefs about social media represent mindsets, then mindset theory argues that these social media mindsets should differentially relate to psychological processes and outcomes (Walton & Wilson, 2018; Yeager et al., 2018). By functioning like a lens through which individuals see and understand their experiences, mindsets have been shown to affect a person's attention and perception, shape their subsequent judgments and emotions, and even influence

their health and well-being (Jamieson et al., 2018; Crum et al., 2023). Tracing the pathway from distinct mindsets to psychological outcomes may help shed light on why social media is enhancing for some individuals and harmful for others. In this paper, we define social media mindsets as *the core beliefs held by individuals that orient their expectations, behaviors, attributions and goals regarding the role of social media in their lives*.

What Are Mindsets and Why Do They Matter?

Mindsets are core beliefs that shape how people understand specific experiences, acting like tinted lenses that color how people see the world (Yeager et al., 2019; Crum et al., 2017). Crum et al. (2023) define a mindset as core assumptions that alter how people interpret their experience based on their expectations and goals and subsequently influence their behavioral and physiological responses. According to this approach, considering mindsets is important because individuals' responses to situations are often guided by how they interpret them, whether they are conscious of it or not. Indeed, classical psychological work emphasizes that people are not governed by the passive reception of an objective reality but rather by "their own subjective representations and constructions of the events that unfold around them" (Griffin & Ross, 1991).

 Mindsets matter because the beliefs people hold can have downstream effects on people's lives, contributing to important outcomes like psychological well-being (Rege et al., 2021) and academic achievement (Yeager et al., 2019). A powerful demonstration of how mindsets coordinate the pathway from beliefs to psychological processes to behaviors can be seen in seminal work on intelligence mindsets (Dweck, 2006). In a series of nationally representative studies, scholars found that students' fundamental beliefs about intelligence predicted their subsequent academic performance and well-being (Yeager et al., 2019; Yeager et al., 2022). Low-performing students who held the mindset that their intelligence could be grown

felt more positively about learning, pushed themselves to take on more challenging material, and persevered after academic setbacks. In contrast, similar students who believed their intelligence could not be changed tended to internalize academic failures as indicative of personal failings, avoiding evaluations that felt like a referendum on their ability, and ultimately missing out on opportunities for academic improvement. Like a well-worn pathway, mindsets guide people towards a familiar set of steps they can take to understand and react to important situations (Gollwitzer, 1999; Williams, Huang, & Bargh, 2009).

We hypothesize that the mindsets people have about social media may guide them to respond to social media experiences in different ways, with some responses being more adaptive than others. Mindset theory suggests two people can use social media in similar ways, but come away with different experiences if they view their social media use in fundamentally different ways (Yeager et al., 2019; Jamieson et al., 2018). Mindsets help people answer commonplace questions like, "How do I feel about the time I spend on social media?" in simple terms by supplying a default view. They may shape their general expectations about their sense of control over social media or whether it has a positive or negative effect for them. For instance, someone who feels that their social media use is out of their control may interpret an hour spent browsing content from friends as a failure to manage their time effectively, with potential negative ramifications for their productivity ("I feel bad having wasted my time on social media") (Lanette et al., 2019; Cheng et al., 2019). As a result, they may feel disappointed in themselves, resulting in a more depressed mood and a reduced sense of self-efficacy (Du et al., 2021). In contrast, an individual with a more empowered mindset might view the same use as leveraging a technological tool to fulfill social and relational goals ("I feel good about having spent time connecting with others on social media"). They may focus on the positive actions they took on

social media, such as building stronger relationships or finding new connections and emphasizing what social media can do for them. Though stylized, these examples illustrate how core beliefs about social media can color people's experiences with social media in psychologically important ways.

Overview of Studies

We conducted four survey studies (*total N* = 2,179) to understand the mindsets people hold about social media and their importance for psychological well-being. The first objective was to identify the dimensions of social media mindsets and to develop a scale for measuring them. In Study 1, we followed the steps for scale development outlined in Boateng et al. (2018) to create a 12-item Social Media Mindsets Scale, with two dimensions assessing agency and valence mindsets. Study 2a confirmed the structure of the Social Media Mindsets scale in a new, more diverse sample and Study 2b assessed its convergent, divergent, and predictive validity.

The second objective was to examine how social media mindsets related to social media use and well-being. Study 2 analyzed the relationship between social media mindsets and three distinct measures of psychological well-being: life satisfaction, perceived social support, and psychological distress (i.e., experience of anxiety, stress, and depression). Study 3 aimed to replicate this relationship and extend it by comparing the association between mindsets and well-being against other measures of social media use, such as the amount, intensity, and type of use (e.g., active vs. passive). This study also examined the behavioral and appraisal mechanisms underlying the link between mindsets and well-being by conducting moderation and mediation analyses. Finally, Study 4 examined how mindsets related to a measure of computer-logged social media use, to triangulate the relationship between mindsets, recalled use, and objective measures of use.

Study 1: Identification of Social Media Mindsets

Study 1 aimed to identify core mindsets people have about the role of social media in their lives and develop a scale to measure them. Recent research examining people's beliefs about social media suggested that mindsets revolve around two dimensions, agency and valence (Lee et al, 2021). Using in-depth interviews, Lee et al. (2021) probed how people reasoned about the role of social media in their lives, finding that views of social media were shaped by core beliefs about the dynamics of the relationship between social media and users (agency), and perceptions of its effects as enhancing or harmful (valence).

We built on this prior work to develop a scale to measure social media mindsets by conducting two pilot studies and a survey. The first pilot generated a preliminary item pool and the second pre-tested and reduced items for the final measure. We then administered the final measure to a larger sample to conduct an exploratory factor analysis. Based on Lee et al. (2021), we hypothesized that we would identify a two-factor structure organized around the dimensions of agency and valence.

Method

Item generation, scale development, and pilot studies

As shown in Table 1, we followed the nine steps of scale development outlined by Boateng et al. (2018) to create our measure (See Supplemental Materials for details on the scale development and validation process).

After establishing a preliminary conceptual definition of social media mindsets and confirming no existing measures exist, we generated a list of preliminary items using inductive and deductive methods as recommended by Haynes et al. (1995). This process yielded 118 preliminary items (step 1), following Schinka's (2012) guideline of obtaining approximately five

times the desired length of the final instrument (e.g., 20 items) to avoid construct under-representation. To establish content validity (step 2), the items were reviewed by two groups of experts (members of two research groups; *total N* = 18[i]) for content relevance, representativeness, and technical quality. Feedback was used to adjust the items for clarity, simplicity, and readability. Revised items were pre-tested (step 3) with members of our target population (i.e., individuals who regularly use social media) (*n* = 10 undergraduate students).

Pilot Study 1. To complete the fourth step of *administering the survey* to a sample population, we conducted a pilot study of 157 participants recruited from Amazon mTurk. Ten participants were excluded for failing attention check questions, bringing the final sample to 147 (77% white, 64% male) (see Supplemental Materials for full demographics). We reviewed participants' responses to facilitate *item reduction,* the fifth step of scale development which is necessary for ensuring the scale is parsimonious (DeVellis, 2021). In line with guidance from Devellis (2021) we followed classical test theory to remove items by examining descriptive data and inter-item correlations. After removing items that reflected beliefs about other users rather than the self (n_{items} = 20); were worded confusingly (n_{items} = 10); had low relevance to the construct of interest (n_{items} = 19); and high inter-item correlations because they measured similar beliefs with different phrasing (n_{items} = 77; e.g., "I am not in control of my social media use", "My social media use is not in my control"[ii]), we obtained a final scale with 12 items.

Pilot Study 2. To examine scale performance following item reduction, we conducted a second pilot study with another mTurk sample (*n* = 153; 78.3% White, 55.6% male) (see Supplemental Materials for details). Upon completion, we received feedback that participants were unclear about *whose* social media use they should report on. Some participants thought the items referred to their own use of social media, while others thought the survey was about other

people's use of social media or about social media companies (e.g., Facebook as a company). Therefore, we revised the phrasing of the scale items and instructions to clarify participants should respond about their personal beliefs about their own social media use (e.g., "Using social media is a waste of time" to "Using social media is a waste of time for me"). The final Social Media Mindset scale (SMM) can be seen in Table 2.

Study 1: Participants and procedure

We recruited a third sample of participants (*n* = 706) from Amazon mTurk to complete the scale as part of a larger study on social media use[iii] to facilitate step six of the scale development process: factor extraction. Our objective was to conduct an exploratory factor analysis to determine the optimal number of factors that fit our set of items. By exploring the number of factors that emerged, we would be able to understand the core dimensions of social media mindsets.

We excluded 57 participants for failing attention checks, bringing the final sample to 649 (55.7% male). In terms of racial composition of the sample, 444 participants were white (67.6%), 51 were African American (7.8%), 55 were Hispanic/Latino (8.4%), 60 were Asian (9.1%), 4 were Native American/Pacific Islander (.6%), and 33 were Multiracial (5%). The average age of participants was 31 years old (range = 18 to 81, SD = 9.37). The study involved participants completing the 12-item SMM. All items were scored on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) (see Table 1).

Results & Discussion

Social media mindsets have two dimensions: Agency and valence

Exploratory factor analysis assessed which items clustered together. Because we anticipated inter-item correlations due to asking multiple questions tapping into beliefs about

social media, we used an Oblimin rotation (with delta set to 0) and ran a principal axis factor analysis that converged in 4 iterations. Although maximum likelihood is the most common estimation method in factor analysis, it assumes data are normally distributed in the population of interest. A series of preliminary normality tests, however, found that our data did not meet this assumption and we therefore used the principal axis factoring extraction method (Costello & Osborne, 2005; Williams, Onsman, & Brown, 2010). This yielded two factors explaining 59.4% of total variance (see Table 1). Using the cut-off of > .50, we found a simple structure with relatively good factor loadings (range: .58 - .85).

Results of the pattern matrix were interpreted to identify two emergent factors. The first factor contained five items about the extent to which individuals felt their social media use was under their control. Positively loaded items related to beliefs about perceived lack of control over social media use ("I end up using social media even when I don't mean to") and negatively loaded items related to feelings of agency ("I am good at managing the ways I use social media"). We interpreted the first factor as capturing the dimension of agency that individuals have relative to their social media use. For ease of interpretation, we inverted the dimension of the SMM such that higher scores indicated more perceived agency.

The second factor contained seven items about the extent to which individuals believed the effects of social media were enhancing or harmful. Items that loaded positively supported the belief that social media use was a positive force in their lives by enhancing relationships, providing opportunities for learning and growth, and offering utility ("Social media is a helpful tool that I use"). The item that loaded negatively onto the second factor related to how much people felt that social media was a waste of time. We interpreted the second factor as capturing the valence associated with social media as positive or negative. The two factors were not

significantly correlated in the correlation matrix ($r = .068$). Analysis of the internal consistency of each factor with Cronbach's alpha indicated good reliability (agency $\alpha = .76$, valence $\alpha = .87$).

Together, these 12 items represent the Social Media Mindset Scale (SMM), which systematically measures social media mindsets. Consistent with prior research (Lee et al., 2021), people's mindsets were organized around two dimensions of beliefs about the role of social media use in their lives.

Studies 2a & 2b: Validation and Application of the Social Media Mindsets Scale

We assessed the validity and utility of the SMM in two independent samples to ensure the scale was fit for broader use. Study 2a focused on replicating the two-factor structure, assessing reliability, and examining convergent validity. Study 2b tested the divergent validity of social media mindsets relative to other measures. Both examined the predictive validity of social media mindsets for psychological well-being.

Study 2a. Confirmatory Factor Analysis, Reliability, and Convergent Validity

To assess convergent validity, we used correlational analyses to examine the relationship between social media mindsets and other measures that past research suggests should be theoretically related. Self-reported time spent on social media, one of the most commonly used measures of social media use (Ernala et al., 2020), should be related to mindsets because the recall process can be influenced by people's beliefs (Lee et al., 2021). Similarly, mindsets should correlate with social media use intensity because the strength of one's emotional attachment to a platform (Ellison et al., 2007) should relate to core beliefs about the role of social media in one's life. Finally, mindsets should relate to active and passive use of social media (Verduyn et al., 2022) because higher-order beliefs about social media may influence individuals' decisions to

actively engage with others or passively consume content on social media. However, because social media mindsets represent a fundamental belief about the nature of one's relationship with social media rather than a specific behavior (e.g., active vs. passive use), a dynamic of their use (e.g., time spent), or a sense of attachment (e.g., intensity), we hypothesized that mindsets would be significantly associated with, but distinct from, these existing measures of social media use.

Method

Participants

We recruited 453 university students to complete a study for course credit. We excluded 124 participants for incomplete responses and 4 for failing attention checks, bringing the final sample to 325 students (69.2% female, 25.5% White). Our sample was relatively diverse, with 121 identifying as Hispanic/Latino (37.2%), 22 as Native American/Pacific Islander (6.8%), and 59 as Multiracial (18.2%). Ten percent of participants did not disclose their ethnicity. The average age was 24 years old (range = 15-60, $SD = 7.53$).

Measures

Social media mindsets were measured with the SMM (scale: 1 = "strongly disagree" to 5 = "strongly agree"). Means were calculated for agency ($M = 3.27$, $SD = .71$) and valence ($M = 3.31$, $SD = .70$) (See Table 3 for descriptive data).

Self-reported social media use was measured with a field-standard question asking participants how much time they spent on social media on a regular day (scale: 1 = "not at all," 5 = "a great deal") (Ernala et al., 2020) ($M = 3.66$, $SD = 1.07$). They also reported time spent on Facebook ($M = 2.10$, $SD = 1.38$), Instagram ($M = 3.04$, $SD = 1.72$), Snapchat ($M = 2.39$, $SD = 1.73$), Twitter ($M = 2.08$, $SD = 1.74$), and Reddit ($M = 1.52$, $SD = 1.18$) in hours (scale: 1 = "not at all", 2 = "0-1 hours", 3 = "1-2 hours", … 8 = "6+ hours").

Intensity of social media use was measured with the 8-item Facebook Intensity Scale, which assessed emotional connectedness to social media and its integration into their daily life (e.g., "How much is social media is a part of your everyday activity?") (Ellison et al., 2007) (*M* = 3.27, *SD* = .79). The scale was modified to refer to "social media" instead of "Facebook" alone (scale: 1 = "strongly disagree", 5 = "strongly agree").

Active and passive use of social media were measured with six self-report questions (Verduyn et al., 2022). Active use involved "activities that facilitate direct exchange with others" like posting content, talking to other people, and responding to content by commenting or liking (*M* = 2.71, *SD* = .86). Passive use was defined as "consuming information without direct exchanges" such as watching videos, looking at photos, or scrolling through feeds (*M* = 2.54, *SD* = .73) (scale 1 = "not at all", 5 = "very frequently").

Results

Confirmatory factor analysis of the SMM

For the seventh step of scale development, we used an independent cluster-model confirmatory factor analysis to test whether the two-dimensional structure found in Study 1 fit the data adequately in a new, more diverse sample (Bandalos, 1996) using the *lavaan* package in R (Rosseel et al., 2012). Cross-loadings between items and non-target factors were assumed to be zero. Our results suggested adequate model fit, ($X2 = 172.03$, *df* = 53, *p* < .001), *CFI* = .90, *TLI* = .87, *RMSEA* = .08, *SRMR* = .08 (See Figure 1 for model loadings). Our analysis confirmed that the structure of social media mindsets were organized around two dimensions of agency and valence.

Reliability of the SMM

We evaluated scale reliability and consistency for the eighth step of scale development (Cronbach, 1951). General data about the properties of the scale can be found in Table 3. The mean scores for agency mindsets was 3.26 (SD = .71) and 3.31 for valence mindsets (SD = .70). Reliability was assessed with Cronbach's alpha, indicating good reliability (agency α = .76, valence α = .84).

Convergent validity of the SMM

To test the convergent validity of the scale (step 9), correlational analyses examined if mindsets are associated with theoretically related constructs about social media. As shown in Table 4, both agency and valence mindsets were significantly correlated with self-reported social media use, intensity of use, and active and passive use. As predicted, people with more agentic mindsets also reported using social media less, with less intensity, and having less active and passive use. People with more positive mindsets used social media for longer, with greater intensity, and both more actively and passively. The significant weak to moderate correlations suggests that social media mindsets are related to but also distinct from other social media constructs (Raykov & Marcoulides, 2011)[iv].

Study 2b. Divergent and predictive validity of the SMMS

Study 2b tested the divergent validity of agency and valence mindsets by comparing them against a broader range of measures. First, we tested whether agency mindsets were distinct from general self-efficacy (Schwarzer & Jerusalem, 1995). While having confidence in one's general ability to obtain valued goals should be associated with believing that one has agency over their social media use, people vary substantially in the control they feel they have over specific facets of their lives (e.g., in their professional life, but not personal life) (Grether et al., 2018; Cervone,

2000). We theorized these constructs would be distinct because having a sense of control over one's social media is conceptually different from feeling control over one's life, writ large.

Second, we examined whether agency mindsets were distinct from problematic or addictive social media use, when people use it to an extent that infringes on their personal or professional obligations, and experience cravings when it is unavailable (Andreassen et al., 2016). In line with prior work on behavioral addictions, it is important to discern between *beliefs* about the role of social media in one's life (e.g., "I'm good at managing my social media use") and *experiences* that impinge on everyday functioning (e.g., "How often during the past year have you ignored your partner, family members, or friends because of social media?") or support maladaptive coping mechanisms (e.g., "How often during the past year have you used social media in order to forget about personal problems?) (Griffiths et al., 2005). Finally, with respect to valence mindsets, we also considered the extent to which having a more positive mindset reflects a more positive general disposition overall by comparing it to a measure of optimism.

An important additional step of validating the SMM was to test whether social media mindsets were related to outcomes of interest (i.e., predictive validity). Therefore, we examined the relationship between social media mindsets and psychological well-being in two samples. Drawing on theory and research on how mindsets can influence psychological well-being (Walton & Wilson, 2018; Yeager et al., 2021), we anticipated that the two dimensions of social media mindsets would be associated with well-being through different processes. Having a greater sense of control over aspects of one's life should be related to psychological benefits, overall (Bandura, 2001) and in the context of social technology use (e.g., computer self-efficacy, Venkatesh & Davis, 2000). On the other hand, feeling a lack of agency over one's own life may be associated with worse well-being. A perceived lack of control over digital experiences can

increase depression, anxiety, and loneliness (Cheng et al., 2019), especially if people perceive themselves as addicted (Lanette et al., 2019). Based on these findings, we predicted that agency mindsets would be positively associated with psychological well-being.

We theorized that more positive valence mindsets would relate to better well-being as mindsets often tap into powerful expectancy effects, where the anticipation or assumption of positive or negative outcomes begets experiences that engender those outcomes (Jamieson et al., 2018). Having the mindset that the effects of social media use are enhancing (e.g., as a tool to improve communication) rather than harmful (e.g., as a waste of time) may thus be related to well-being.

Method

Participants and Procedure

We recruited 733 participants from CloudResearch. After excluding 83 participants for failing attention checks or incomplete responses, the final sample included 650 individuals (62% white, 49% women). The average age of the final sample was 39.2 years old ($SD = 13$ years).The sample was relatively ethnically diverse, with 407 identifying as White; 58 as Asian or Asian American; 83 as Black, African, or African American; 36 as Hispanic or Latino; 7 as Native American or Indigenous; 2 as Middle Eastern or North African. Seven participants did not not indicate ethnicity.

In line with Boateng et al.'s (2018) guidance on assessing divergent validity, we split the sample so that half completed measures of self-efficacy and trait optimism ($n = 364$), and half completed a measure of problematic social media use ($n = 286$)[v]. All participants completed psychological well-being measures.

Measures

General self-efficacy was assessed with the New General Self-Efficacy Scale (Chen et al., 2001), an 8-item survey about how people believe they can achieve their goals, despite difficulties (e.g., "I am confident that I can perform effectively on many different tasks") (scale: 1= 'strongly disagree' , 5 = "strongly agree"). (Descriptive statistics are in Supplemental Materials).

Problematic social media use was assessed with the Bergen Social Media Addiction Scale (Andreassen et al., 2016), an 18-item measure that examines how often participants' social media use exhibits features in line with six core elements of behavioral addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse (Griffiths, 2005) (scale: 1 = 'never', 5 = 'always').

Trait optimism was assessed with the Revised Life Orientation Test (Scheier et al., 1994), a 10-item survey capturing individual differences in generalized optimism vs. pessimism. Higher scores indicate a stronger disposition towards viewing the positive qualities of situations (scale: 1 = 'strongly disagree', 5 = 'strongly agree').

Psychological distress was assessed with the Depression, Anxiety, and Stress 21 Scale (DASS), a widely used survey that captures how frequently individuals experience physical, emotional, and psychological symptoms of depression, anxiety, and stress (scale 0 = not at all, 3 = almost always) (Norton, 2006). Scores were calculated for the overall scale ($M = 3.41$, $SD = .66$), and for each subscale (depression: $M = 1.78$, $SD = .83$; anxiety: $M = 1.50$, $SD = .62$; stress: $M = 1.79$, $SD = .72$).

Relational well-being was assessed with the Perceived Social Support scale (Zimet et al., 1988), which measured feelings of subjective interpersonal support from friends ($M = 5.10$, $SD =$

1.56), family ($M = 5.12$, $SD = 1.61$), and partners ($M = 5.41$, $SD = 1.65$) (scale: 1 = "very strongly disagree", 7 = "very strongly agree") (overall $M = 5.21$, $SD = 1.41$).

Eudaimonic well-being was measured with the *Satisfaction with Life Scale,* which captured the extent to which participants felt their life was ideal (Diener et al., 1985) (scale: 1 = "strongly disagree", 7 = "strongly agree") ($M = 4.07$, $SD = 1.71$).

Results

Divergent validity: Are social media mindsets a distinct variable?

As shown in Table 5, social media mindsets were significantly correlated with general self-efficacy, optimism, and problematic social media use. The weak to moderate correlations indicated that social media mindsets are related to, but not redundant with, these variables (Raykov & Marcoulides, 2011)[vi].

We applied a more stringent test of divergent validity using latent variable modeling techniques to assess whether social media mindsets were distinct (Crum et al., 2017; Boateng et al., 2018). Using *lavaan* in R, we built a series of structural equation models that respectively treated agency and valence mindsets as either (1) a unique construct (two-factor model) or (2) a reflection of a preexisting measure, such as general self-efficacy (one-factor model).

Comparison of model fit indices provided evidence that social media mindsets are distinct from preexisting measures. As shown in Table 6, models that treated agency mindset as a separate construct were better on all indices of fit than those modeling it as a form of general self-efficacy, optimism, or problematic social media use. Similarly, modeling valence mindsets as distinct produced better model fit than when treating it as reflective of a preexisting measure. Results supported the divergent validity of social media mindsets.

Together, the results from Studies 2a and 2b suggest the SMM is a reliable and valid instrument. Results from confirmatory factor analysis replicated the model of social media mindsets as organized around beliefs about agency and valence, and the SMM demonstrated good internal reliability and both convergent and divergent validity.

Predictive validity: Social media mindsets and psychological well-being

We examined the relationship between social media mindsets and diverse indicators of psychological well-being with linear regression analyses, conducted on the two independent samples ($n_{Study\ 2a}$= 325; $n_{Study\ 2b}$ = 650). Agency and valence mindsets were the predictor variables, and psychological distress, perceived social support, and life satisfaction were entered as dependent variables, respectively. Age, gender, and ethnicity were included as covariates based on research indicating that identity characteristics are often associated with psychological well-being, particularly with respect to individual experiences with technology (Orben et al., 2022).

As shown in Table 7, we found that social media mindsets were significantly associated with psychological well-being in both samples (see Supplemental Materials). In Study 2a, having a more agentic mindset was associated with less depression (β = -.19, p < .001), anxiety (β = -.09, p =.03), and stress (β = -.19, p < .001), as well as less psychological distress overall (β = -.17, p < .001). Having a more positive valence mindset was also related to reduced psychological distress on all levels (depression: β = -.21, p < .001; anxiety: β = -.09, p = .03; stress: β = -.09, p = .04), having more perceived social support from friends (β = .17, p = .01), and having greater life satisfaction (β = .16, p = .03).

We observed similar results in Study 2b. Again, people who held more agentic mindsets reported less depression (β = -.20, p < .001), anxiety (β = -.21, p =.03), and stress (β = -.25, p < .001). In addition, they also reported experiencing more perceived social support (β = .11, p

= .03). People who held more positive mindsets about social media reported less psychological distress (β = -.12, p = .001); more perceived social support from friends (β = .47, p < .001), family (β = .42, p < .001), and partners (β = .38, p < .001); and life satisfaction overall (β = .37, p < .001).

The positive relationship between agency mindsets and psychological well-being is consistent with research on social cognitive theory and loci of control (Kormanik & Rocco, 2009) demonstrating that having a sense of efficacy over one's life is vital to well-being. The higher levels of psychological distress reported by individuals with a low-agency mindset aligns with past work linking difficulty managing social media to worse well-being (Andreassen et al., 2016; Cheng et al., 2019).

Valence mindsets were also related to well-being, paralleling research on the self-fulfilling expectancy effects of mindset (Crum et al., 2017). People with more positive mindsets had better well-being, on all measures, than those who believed its effects to be harmful. Just as having the mindset that "stress is enhancing" supports people in thinking about and responding to stressors in adaptive ways, people who hold the mindset that "social media is enhancing" may also be oriented towards using it in more meaningful ways. Rather than focusing on what social media takes away from their lives (e.g., time spent with work, Siebers et al., 2022), they may instead be attuned to social media's affordances of opportunities for social connection, relaxation, and information.

Study 3: Understanding the Relationship between Mindsets and Well-Being

Study 3 extended our analysis of social media mindsets and psychological well-being in two ways. First, we examined whether mindsets explained more variance in well-being than other commonly used measures of social media use. Building on mindset theory that suggests

people's beliefs about an experience can be more important in shaping their outcomes than the amount of time they actually spend with it (Jamieson et al., 2018), we expected that mindsets would explain more variance in perceived social support and psychological distress than the amount, intensity, and type of individuals' social media use.

We examined two possible routes through which social media mindsets could relate to well-being. Prior work demonstrates that mindsets can have (1) a direct effect on outcomes by shaping appraisals of experiences, and (2) an indirect effect by changing behaviors (Yeager et al., 2018; Jamieson et al., 2018). We theorized that social media mindsets should thus also be related to perceptions of time spent on social media, and usage behaviors.

While research has argued that spending too much time on social media can harm well-being (Andreassen et al., 2016), recent work challenges this view. In the context of digital media use, poor well-being is often linked to perceptions of overuse (e.g., feeling addicted) even if individuals do not spend much time online (Lee et al., 2021; Cunningham et al., 2021). Indeed, Ernala et al. (2022) find that perceptions of Facebook as good or bad moderated the relationship between time spent on the platform and self-reported well-being. People experienced worse well-being after spending time online if they held the view that Facebook was harmful for them. We therefore proposed an *appraisal route*, where agency and valence mindsets were theorized to moderate the relationship between social media use on well-being by being associated with how people made sense of the time they spent online.

Social media mindsets may also be associated with well-being because they orient people towards different ways of engaging with social media via a *behavioral* route. For example, people can use social media to passively browse content or to actively post, respond to, or connect with others (Verduyn et al., 2022). While prior studies have tied active use to enhanced

well-being and passive use to worse well-being (Kross et al., 2013), this may be because people who use social media passively are scrolling mindlessly (e.g., to procrastinate, to pass time) whereas active use often involves the pursuit of meaningful social goals (e.g., catching up with friends, discussing shared interests) (Hofmann & Reinecke, 2016). An important question, then, is whether social media mindsets may indirectly relate to well-being by corresponding to particular kinds of behaviors. Building on prior work, we predicted that the relationship between social media mindsets and well-being would be mediated by more active and less passive social media use.

Method

Participants and Procedure

We recruited 183 participants from mTurk to complete a study on "Opinions on technology." Twenty-one participants were excluded for incomplete responses and failed attention checks. Our final sample consisted of 162 participants (67.9% male, 74.7% White). Eleven participants identified as Asian (6.8%), 11 as Hispanic / Latinx (6.8%), 11 as African American (6.8%), and % as Multiracial (4.9%). The average age of participants in the sample was 34.7 years old (*SD* = 11 years).Participants completed the same measures of social media use and psychological well-being as Study 2. Descriptive statistics can be found in the Supplemental Materials.

Results

Replicating the relationship between social media mindsets and psychological well-being

As shown in Table 8, we replicated the associations between social media mindsets and psychological well-being following the same analytical approach from Study 2. All regressions controlled for participant age, gender, and ethnicity, and both agency and valence mindsets were

entered as predictor variables. Again, people with more agentic mindsets were less psychologically distressed (β = -0.33, *SE* = .08, *p* < .001) and perceived more social support (β = 0.26, *SE* = .10, *p* = .01). Having a more positive mindset was also associated with better well-being on all indices. Valence mindsets were associated with less psychological distress (β = -.18, *SE* = .07, *p* = .01), more perceived social support (β = .32, *SE* = .10, *p* = .001), and life satisfaction overall (β = .56, *SE* = .13, *p* < .001).

Mindsets explain more variance in well-being than amount, intensity, and type of use

To test the strength of the association between social media mindsets and psychological well-being relative to other commonly used social media measures, we conducted a series of separate regressions including measures of self-reported time spent on social media, intensity of use, and active vs. passive use as predictors alongside social media mindsets. Gender, age, and ethnicity were entered as predictors in block 1 to account for potential demographic differences; social media use measures were entered as predictors in block 2; and agency and valence mindsets were entered in block 3, allowing us to examine the amount of variance in well-being that was explained by mindsets relative to other variables.

Results indicated that mindsets explained more variance in psychological distress than other measures of social media use (See Table 9). Examinations of the adjusted R^2 between showed that demographic differences and social media use only accounted for 2% of the variance in psychological distress, but including mindsets in the model explained 20% of the variance in reported depression, anxiety, and stress (*p* < .001). In particular, agency (β = -0.32, *SE* = .10, *p* < .001) and valence mindsets (β = -0.26, *SE* = .14, *p* = .01) were the strongest predictors of reduced psychological distress. Time spent on social media was also significantly associated with psychological distress, to a lesser extent than mindsets (β = -0.19, *SE* = .10, *p*

= .05). Social media use intensity (β = .20, *SE* = .15, *p* = .07), active use (β = .10, *SE* = .11, *p* = .28), and passive use (β = .002, *SE* = .14, *p* = .98) were significantly associated with psychological distress.

We observed similar results for perceived social support from friends. Social media mindsets explained three times the variance in perceived social support (*Adj. R²* = .11, *p* < .001) than measures of social media use, accounting for demographic differences (*Adj. R²* = .03, *p* = .002). They were also the most strongly associated with perceived social support. People who held more agentic mindsets (β = .21, *SE* = .15, *p* = .02) and more positive mindsets (β = .23, *SE* = .20, *p* = .04) felt more connected to their friends. No significant associations were observed between time spent on social media (β = .04, *SE* = .14, *p* = .72), intensity of use (β = -0.04, *SE* = .22, *p* = .73), active use (β = .16, *SE* = .15, *p* = .10), or passive use (β = -0.16, *SE* = .20, *p* = .07) and perceived social support in the full model.

Mindsets were also strong predictors of life satisfaction, but to a lesser degree. Social media mindsets explained an additional 2% of variance in life satisfaction (*Adj. R²* = .17, *p* = .06) relative to models accounting for demographic differences and social media use (*Adj. R²* = .15). Having a more positive mindset (β = .24, *SE* = .23, *p* = .03) and using social media more actively (β = .34, *SE* = .17, *p* < .001) and less passively (β = -.25, *SE* = .23, *p* = .004) was associated with being more satisfied with one's life.

Appraisal effects of social media mindsets on well-being

To see of mindsets were related to how people appraised time spent on social media, we tested if they moderated the relationship between use and psychological well-being using the Hayes Process Model (Hayes, 2013). Time spent on social media was entered as the predictor

variable, valence and agency mindsets as moderators, and psychological well-being measures as outcome variables (See Supplemental Materials for more information).

Results indicated that the link between time spent on social media and psychological well-being was moderated by mindsets. Spending more time on social media was associated with more depression, anxiety, and stress, when people believed that they had little over control over their use, but not when they felt a sense of agency over their experiences ($R^2 = .02$, $F(1, 158) = 5.87$, $p = .02$). In addition, valence mindsets moderated the relationship between time spent on social media and life satisfaction. People who believed that social media was enhancing experienced greater life satisfaction when they used social media more, whereas those believed social media to be harmful experienced worse well-being when they used social media more ($R^2 = .02$, $F(1, 158) = 4.83$, $p = .03$).

No significant moderation effects were observed for other well-being variables. Notably, agency mindsets did not moderate the relationship between time spent on social media and perceived social support despite being significantly related in regression analyses. Similarly, the non-significant moderation of valence mindsets on psychological distress suggests that positive mindsets are related to well-being through a different process, potentially by influencing individuals' engagement with social media.

Associations between social media mindsets and behavioral change

We also expected that mindsets would be indirectly related to well-being by being associated with different social media behaviors. To test whether behavior mediated the link between mindsets and well-being, we fit a series of indirect mediation analyses using the Hayes Process Model 4 (Hayes, 2013), with mindsets as the predictor variables, active and passive use

as the mediator variables, and psychological distress, perceived social support, and life satisfaction as the outcome variables, respectively.

Results revealed that agency mindsets were indirectly related to psychological distress by being associated with different ways of using social media. As described in Figure 2, the association between agency mindsets and psychological distress was partially mediated by reductions in passive use, although there was still a significant direct path from mindset on distress (β = -.51, *95% CI* [-.70, -.31]). The indirect path was significant (β = -.16, *SE* = .05, *95% CI* [-.26, -.07]), as was the total effect (β = -.66, *SE* = .09, *p* < .001, *95% CI* [-.85, -.48]). This partial mediation indicates that people with more agentic mindsets reported lower psychological distress, in part because they also used social media less passively (β = -.40, *SE* = .11, t = -.5.59, *p* < .001, *95% CI:* [-.83, -.39]). There were no mediation effects of agency mindset for social support or life satisfaction.

Valence mindsets were also meaningfully related to social media use and psychological distress. Indirect mediation results indicated *partial competitive mediation* (MacKinnon et al., 2000), a common mediation outcome where indirect and direct effects are significant but point in opposite directions. Specifically, people who had more positive mindsets felt less depressed, anxious, and stressed than those with more negative mindsets (β = -.31, *SE* = .11, *t* = -2.92, *p* = .004, *95% CI* [-.52, -.10]). However, they also tended to use social media more passively, which was associated with a small, indirect increase in their distress (β = .13, *SE* = .05, *95% CI* [.03, .24]). This pattern of results suggests that valence mindsets are associated with well-being in two different, yet competing, ways. Examination of the total effect (β = -.19, *SE* = .12) revealed that overall, having a more positive mindset is associated with reduced psychological distress even if it also corresponds with using social media in less adaptive ways.

While these findings are correlational and cannot speak to causal effects, the pattern of results suggest that social media mindsets play a role in shaping how social media use relates to psychological well-being. Consistent with research indicating people's subjective experiences with technology are often more consequential than the amount of their use (Cunningham et al., 2021; Ernala et al., 2022), mindsets explained more variance in psychological distress and perceived social support than other social media variables.

Furthermore, moderation and mediation analyses revealed that associations between time spent on social media and well-being were informed by mindset. Spending more time on social media corresponded to worse well-being when people felt their use was out of their control, or harmful to them, but not when they held an agentic and positive mindset. We refer to this as an *appraisal route* for how mindsets may relate to how people perceive the value of the time they spend on social media. Our results also provide evidence for a *behavioral route,* where mindsets are associated with more or less beneficial behaviors, such as using social media less passively and more intentionally. Indeed, a core feature of mindsets is that they "alter not only how people interpret their experience but also their behavioral and physiological responses" by orienting people towards certain sets of actions (Crum et al., 2023).

One important limitation is that our studies rely on self-reported measures of social media use rather than computer-logged data. It is possible that individuals' mindsets relate how people *recall* the time they spent on social media differently from the time that they *actually* spend on social media (e.g., as assessed by screentime-tracking applications). Therefore, triangulating the relationship between social media mindsets and use should include measures of actual social media use.

Study 4: Social Media Mindsets and Logged Social Media Use

Study 4 investigated how social media mindsets related to actual (logged) versus recalled (self-reported) social media use by collecting data through Apple ScreenTime, which logs the time that users spend on social media on their devices. We drew on mindset theory (Jamieson et al., 2018) to theorize how mindsets would be associated with how people remembered their social media use and engaged with it.

Prior research demonstrates that mindset can affect attention and perception, such as by orienting people to pay attention to aspects of an experience that align with their mindset (Goyer et al., 2021). Therefore, people with the mindset that social media is out of their control may thus recall spending more time on social media than those with more agentic mindsets. Indeed, Parry et al. (2022) find people who perceive their media use as excessive often overestimate the time they spent online. People with the mindset that social media is harmful should report spending less time on social media because they may be less likely to report experiences they consider socially undesirable (Latkin et al., 2017). Therefore, we predicted that agency mindset would be negatively associated with recalled social media use and valence mindsets would be positively associated with recalled social media use.

The results of Study 3 indicated that social media mindsets are meaningfully related to behavior, such as the amount of time individuals actually spend online. Having found that people with more agentic mindsets used social media less passively, in part because they tended to use social media more intentionally, we predicted that agency mindsets would be negatively associated with logged social media use. In contrast, people with more positive mindsets tended to spend more time passively browsing social media. As a result, we predicted that less agentic and more positive mindsets would be associated with logged social media use.

Finally, we also tested whether mindsets could shed light on social media use estimation errors, a well-known discrepancy where recalled social media use is only minimally correlated with logged data (Parry et al., 2021; Ernala et al., 2021). While most people remember spending more time on social media than they actually do (Ernala et al., 2021), it is still unclear why certain individuals are more or less accurate than others (Lee et al., 2021). Explaining estimation errors is critical to valid, reliable social media research given that most studies use self-reports to operationalize time spent on social media (Meier & Reinecke, 2022).

Method

Participants and Procedure

We recruited 122 university students to complete an "Opinions on technology" study. They completed a survey about social media mindsets, use, and submitted an image of their Apple Screen-Time results for the current week. They were provided detailed instructions on accessing their Screen-Time results and uploading them to the survey (see Supplemental Materials). We excluded 15 participants for failing an attention check question and 23 for providing invalid Screen-Time images (e.g., uploading an unrelated photo). The final sample included 93 participants (53.3% women, 44.9% White, mean age = 20 years old).

Measures

Participants completed the Social Media Mindsets scale, a measure of recalled social media use, and shared logged social media use metrics.

Recalled social media use was assessed by asking participants to self-report time spent on a regular day for the five most popular social media sites, Facebook ($M = 2.10$, $SD = 1.38$), Instagram ($M = 3.04$, $SD = 1.72$), Snapchat ($M = 2.39$, $SD = 1.73$), Twitter ($M = 2.08$, $SD =$

1.74), and Reddit (M = 1.52, SD = 1.18), (scale: 1 = "not at all", 2 = "0-1 hours", … 8 = "6+ hours") (overall M = 4.12, SD = 3.43).

Logged social media use was obtained from Apple's Screen-Time feature, which recorded how much time they spent on social media platforms on their device. This produced logged estimates of the time people actually spent on social media (weekly average = 9.6 hours, SD = 6.9 hours). To facilitate comparisons with the self-report data, we transformed weekly averages into daily averages (M = 1.3 hours, SD = .9 hours).

Social media use estimation error measured the discrepancy between recalled and logged social media use. We subtracted each participant's logged hours on social media per day from their estimate of how long they spent on social media per day.

Results and Discussion

Social media mindsets and recalled vs. logged social media use

Table 10 shows correlations between social media mindsets, social media use, and estimation errors between recalled and logged time. As predicted, agency mindsets were negatively associated with logged social media use. People who felt in control of their social media spent less time on it (r = -.23, p = .002). While there was no association between valence mindset and logged social media use (r = .10, p = .58), people with more positive mindsets remembered spending more time on social media when self-reporting their use (r = .31, p < .001), which corresponded with larger estimation errors (β = .31, p = .002).

These results indicate that mindsets are meaningfully related to both recalled and logged social media use. In line with the behavioral change route, people who hold more agentic mindsets spent less time on social media than those who felt their use was out of control. In line

with the appraisal route, people who held more positive mindsets tended to inflate its role in their lives and thus overestimate the time they spend on social media.

Our results replicate the sizable estimation errors in social media use found in prior work (Parry et al., 2022) and help explain why some people overestimate their use more than others. Asking individuals to recall and report the time they spend on social media through self-report measures is an active process that is influenced by their thoughts and feelings (Lee et al., 2021). Social media mindsets appear to relate not only how people use social media in the present, but how they remember its role in their lives in the past.

General Discussion

Taken together, these four studies ($N = 2{,}179$) indicate that people hold *social media mindsets,* core assumptions about the nature of their experiences with social media that orient them towards a particular set of expectations, behaviors, attributions, and goals, that relate to psychological well-being. People have *agency mindsets* about the power dynamics between social media use and user (i.e., "Am I in control or is it exerting control over me?":) and *valence mindsets* about the expected effects of social media use on their lives (i.e., "Is this good or bad for me?") that explained more variance in psychological well-being, than measures of use alone. Our measure, the Social Media Mindsets scale, assesses these with good reliability and validity. By tracing potential pathways from beliefs to outcomes, we theorize that mindsets relate to well-being because they are related to differences in how people use social media (*behavioral route*) and interpret the time they spent on it (*appraisal route)*. These findings help shed light on heterogeneous social media effects and extend mindset theory to technological contexts.

Explaining interindividual differences in social media use and well-being

Mindsets offer a novel explanation for why social media use may be enhancing for some people and harmful for others, a long-standing challenge in social media research as meta-analyses consistently find small, mixed effects that vary from person to person (Hancock et al., 2022; Odgers & Jensen, 2020).

Our social media mindset account may help shed light on these heterogeneous effects by identifying two core components that are consistently related to differential well-being outcomes. Across our studies, people with more agentic mindsets about social media (e.g., viewing social media as a tool they could leverage) obtained greater benefits from their social media use, whereas those who felt their use was out of their control (e.g., viewing social media as an addiction) experienced more psychological distress. Similarly, positive mindsets were associated with better well-being and negative mindsets were associated with worse well-being.

It should not be surprising that having a more agentic mindset over social media relates to well-being. Seminal psychological research demonstrates how self-efficacy is essential to maintaining a sense of positive self-regard, an important correlate of mental health (Bandura, 2001; Bandura, 2004). Further, Walton & Wilson (2018) argue that people have a fundamental need to view themselves as capable and agentic, pointing to intervention studies that boosted well-being by giving individuals a greater sense of control over their lives. Similarly, people who understand their lives to be shaped through their own actions (an internal locus of control) tend to experience better psychological well-being than those who view themselves as subject to the forces of their environment, or the whims of others (an external locus of control) (Klonowicz, 2001). Individuals with low-agency mindsets may conceptualize instances of being unable to resist social media as perceived failures of self-control, which may undermine well-being by enforcing a negative self-view (Lanette et al., 2019; Cheng et al. ,2019).

In addition to changing how people think about themselves and their social media use, having a more agentic mindset is also related to more adaptive ways of engaging with social media. People who feel more in control use social media less passively, a type of use that has been theorized to undermine well-being (Kross et al., 2013; Verduyn et al., 2022). However, new work has argued that it is important to distinguish between passive usage behaviors (e.g., browsing) and a passive orientation to social media use (e.g., unintentional or mindless use) (Ellison et al., 2020). If this is the case, then the link between agency mindsets and behavior may be understood as orienting people away from unintentional use and towards more deliberate engagement. Indeed, media mindfulness interventions tap into this idea of intentional use to improve well-being (Poon & Jiang, 2020).

The effect of valence mindsets on well-being is distinct from agency and can be understood as a self-fulfilling prophecy. Prior work shows that mindsets can organize people's perceptions such that they interpret their experiences in a way that confirms their pre-existing beliefs (Crum et al., 2013). People with more positive mindsets may thus experience better well-being because they perceive social media as a valuable resource, and therefore derive more benefits from their use (i.e., obtaining social support, finding desired information, Lu & Hampton, 2017). A recent study by Rhee et al. (2021) supports this notion, finding that people's ability to obtain social resources from their social media use was dependent on whether they believed social media platforms to be a venue for meaningful social interaction. The reverse may also be true: having a negative mindset can predispose people to focusing on its harms. Individuals who believe social media to be deleterious may pay attention to how it detracts from their life, such as missing out on opportunities for in-person interactions or taking time away from other pursuits like work and sleep (Hall et al., 2019). Crucially, however, it does not mean

that social media is inherently positive. Rather than ascribing normative judgments to the value of social media itself, a mindsets-based approach emphasizes that individuals' ability to obtain positive outcomes from social media use may be contingent upon their beliefs - such as the extent they are aware and attuned to its potential benefits and drawbacks.

Considering subjective experiences of social media alongside objective measures of use

Our results suggest that developing a comprehensive understanding of social media effects requires investigations of not only how people use social media, but also how they understand its role in their lives. To date, most research has focused on quantifying the time people spend with social media (e.g., amount, frequency) (Huang, 2017), the ways they use it (e.g., active vs. passive) (Verduyn et al., 2022), and the contexts they use it in (e.g., mobile sensing) (Harari et al., 2017). We can build on these approaches by capturing the internal, belief-based psychological processes that are vital to understanding user experiences (Meier & Reinecke, 2022). Indeed, meta-analyses reveal subjective assessments of the intensity of individuals' emotional attachment to social media (Ellison et al., 2007) and perceptions of their use as problematic (Andreassen et al., 2016) are more closely linked to well-being than measures of use alone (Hancock et al., 2022; Cunningham et al., 2021).

Mindset theory provides a rich theoretical framework for organizing inquiries into these subjective experiences with social media. Though people can have myriad beliefs about social media, we identify two core components of social media mindsets – agency and valence – that appear to be most consequential for individual outcomes. By tracing the impact of these beliefs on appraisals, behavior, and outcomes like well-being, we can build more mechanistic models that explicitly identify the pathways to improved experiences with social media. Just as having a "growth" or "fixed" mindset of intelligence can differentially influence some student's

trajectories (Dweck, 2007; Rege et al., 2021), social media mindsets may also serve as a fulcrum to direct psychological processes.

A systematic approach to accounting for subjective experiences with social media is particularly valuable because theoretical models about technology often presume user agency, or the lack thereof, without considering lay perspectives. For instance, some research on addictive social media use (Andreassen et al., 2016) implicitly indicates that individuals have little agency over their use. Measures of social media addiction are often scaled from "not at all" to "extremely" addicted – a scoring that leaves little room for exploring perceptions of control. On the other hand, a core tenet of research on the uses & gratifications of media (Rubin, 2009) is that people choose media content to meet their needs and goals – an orientation that treats individuals as agentic, even if they may not see themselves as such. Therefore, a mindsets-based approach emphasizes the need to not only infuse scholarly approaches to social media use with considerations of varying levels of user agency, but also to systematically examine how people understand their own sense of agency.

Extending mindset theory to sociotechnical contexts

Our work also extends mindset theory to the technologies that are now integral to our lives. One of the tenets of mindset research has been to examine the downstream impacts of people's core beliefs about important forces in their lives, such as the malleability of their internal abilities (e.g., "Can I improve my intelligence with effort?", Yeager et al., 2019) and the nature of stress (e.g., "Is stress enhancing or harmful to me?", Crum et al., 2017). Technologies, such as social media, can be conceptualized as similarly powerful *digital* forces. For as long as systems like social media and smartphones remain central to communication, we can expect people to hold strong core beliefs about the role they play in their lives.

We can also learn about mindsets by studying them in the context of technology. Whereas having a more agentic mindset speaks to the nature of the relationship between user and technology, having a more positive or negative mindset is a reflection of core beliefs about the nature of social media itself. Unlike intelligence and stress, which are located firmly within the self, technologies like social media are a part of the external world, and therefore raise questions about the dynamics of power and control between the self and one's environment - the subject of extensive research on loci of control in psychology (for a review, see Kormanik & Rocco, 2009) and critical / cultural studies. Our research points to the importance of considering how people understand the amount of power they hold relative to digital forces in their lives.

Limitations and future directions

There are several important limitations in these studies that inform opportunities for future research.

Examining causality. The cross-sectional nature of our survey data prevented us from drawing causal, directional inferences about the effect of social media mindsets on psychological well-being. Our findings suggest that there is a strong, correlational relationship between social media mindsets, time spent, behavior, and psychological well-being. Although mindset theory argues that this relationship is part of a causal pathway, our current cross-sectional analyses cannot speak to the causal or directional nature of this relationship. For example, there may be reciprocal relationships between social media mindsets, use, and behavior where individuals who use social media for longer, or in maladaptive ways, come to not only experience worse psychological well-being but also a more negative mindset.

Disentangling this relationship and identifying causal processes requires experimental research assessing whether changing social media mindsets can drive changes in well-being. As

more work draws attention to the need to test for the directionality between social media experiences and psychological well-being (Orben, 2020), efforts to change social media mindsets should follow participants longitudinally to more thoroughly investigate this potential effect with respect to between- vs. within-person processes, including the stability or lability of mindsets over time (Valkenburg et al., 2022). Replication of the moderation and mediation analyses with a longitudinal intervention would provide additional evidence supporting the behavioral and appraisal routes of social media mindsets.

Indeed, mindsets are a prime target for intervention because they are conceptualized as relatively malleable individual differences (Goyer et al., 2021; Crum et al., 2023). Though they can become "set" or resistant to change as belief systems are internalized and solidified over time, "psychologically wise" intervention techniques that help individuals reframe their experiences can change mindsets (Walton & Wilson, 2018). For instance, a pair of nationally representative interventions used the "saying is believing" paradigm to foster adolescents' growth mindset by urging them to reflect on prior experiences where they were able to learn and improve with effort - which ultimately raised achievement in math (Rege et al., 2021). A similar approach may encourage individuals to adopt a more agentic, positive mindset towards social media by guiding them in recognizing the ways they can use social media to pursue achieve personally meaningful activities. Mindset-based approaches to improving digital well-being may provide an additional pathway towards supporting better experiences with social technology.

Investigating social media mindsets and behavior. While Study 4 compared recalled time spent on social media against computer-logged data, future work should obtain behavioral data that captures what people are doing online. Doing so requires the use of new methodologies that allow us to overcome the inherent challenges of assessing passive use, which does not leave

behind trace data like posts and likes in the way that active use does (Ellison et al., 2020). Using simulated social media feeds (DiFranzo et al., 2019) and screen-recording technologies that capture *in situ* smartphone use (Reeves et al., 2021) could provide visibility into how mindsets relate to behavior.

In addition to allowing us to investigate the behavioral route of social media mindsets with more granularity and ecological validity, considering how mindsets relate to social media behaviors can also advance theorization about person-specific social media effects. Identifying specific behaviors that enhance well-being or harm well-being across individuals has been challenging (Meier & Reinecke, 2021), as the same behavior can benefit some people while harming others. For instance, two individuals who engage in the same activity (e.g., participating in the same art community on Facebook Groups) could hold different beliefs that influence how they interpret its role in their lives: joining the group may be beneficial to one person because they view it as a meaningful source of new connections, but detrimental to another feels the group causes them to neglect their in-person relationships. Because there is substantial variance in what individuals perceive to be "positive activities" on social media (Lee et al., 2021), mindsets may help explain why, and for whom, certain social media behaviors are seen as either enhancing or harmful.

Considering person- and platform-level heterogeneity in social media effects. Given that social media use is highly individualized and influenced by personal context (Bayer, Trieu, & Ellison, 2020), it is important to consider other sources of heterogeneity at the person- and platform-levels. Future work should consider how mindsets relate to other individual differences, such as personality (Kuper et al., 2022) and social media use habits (Bayer et al., 2022), that

have been proposed to explain between-person differences in social media effects. It is likely that social media mindset may interact with these characteristics.

Similarly, more research is needed to attend to the relationship between social media mindsets and platform-specific experiences. While mindset theory indicates that people tend to hold overarching mindsets about higher-level constructs (e.g., about their intelligence, about 'social media'), people can also have different beliefs about specific facets of these constructs. Social media users may also hold different fundamental assumptions about specific social media platforms.

Understanding where mindsets come from. Mindsets are often learned from our environment, through messages embedded in media and in conversations with influential figures, like parents and teachers (Haimovitz & Dweck, 2017). In the case of social media, strong claims about the nature of social media as a tool or an addiction can be found across news headlines, parents' clubs, and the Internet itself. What might be the effect of such public narratives? And how might they be transmitted within households, communities, and comment threads? Understanding the sources that shape social media mindsets is important for not only improving the efficacy of interventions (Walton & Yeager, 2020), but also for advancing theory on belief change and transmission.

People also hold strong beliefs about other people's social media use. Future research should investigate this further by examining if there are self-other differences in these core assumptions. If social media follows the third-person effect of media susceptibility documented with other forms of media (Perloff, 2002), we should see that people systematically believe themselves to have more control over their use than others. Exploring these tensions, and how

they may relate to behavior, may add texture to our understanding of social media effects at the interpersonal level.

Conclusion

Our research introduces a novel conceptual approach to considering the relationship between social media use and psychological well-being by examining the role of *mindsets.* By examining how agency and valence mindsets are associated with psychological well-being our work emphasizes that seeing oneself as capable of *using* social media rather than being *used* by social media may be related to whether social media use is enhancing or harmful to one's well-being. The present research highlights that this fundamental need for agency extends to our use of social technologies.

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Appendix I

The Social Media Mindsets Scale (Final).

Below are some statements about social media.

When people think about social media, sometimes they think about social media companies, the ways that other people use social media, and how they personally use social media.

For the purpose of this questionnaire, we want you to think about the ways that **you personally** think about and use social media.

For each series of statements, please rate the extent to which you agree with each statement.

1. Using social media is meaningful for me.
2. Using social media is a waste of time for me.*
3. Using social media is fun and enjoyable for me.
4. Using social media strengthens and supports my relationships.
5. Using social media facilitates my learning and growth.
6. Using social media lets me do what I want.
7. Social media is a helpful tool that I use.
8. I'm good at managing the ways I use social media.
9. I'm in control of how I use social media.
10. I end up using social media even when I don't mean to.*
11. I find it hard to resist the pull of social media.*
12. I am often manipulated by social media.*

PDF forms of the Social Media Mindsets scale are also available on our OSF.

All items are on a 1-5 Likert Scale: Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree. Items with an * are reverse-scored. Valence mindset scores are calculated by taking the mean of items 1-7. Higher scores indicate more positive valence beliefs about social media and lower scores indicate more negative valence beliefs about social media. Agency mindset scores are calculated by taking the mean of items 8-12. Higher scores indicate higher perceived agency relative to social media and lower scores indicate less perceived agency relative to social media.

Table 1. Scale development and validation procedure for the Social Media Mindsets scale

Scale Development Process and Purpose	Steps Followed for the SMMS
Step 1: Domain identification and item identification *To specify the boundaries of the domain and select which questions to ask*	Study 1 - Provided a preliminary conceptual definition of *social media mindsets* as the core beliefs individuals held about the role of social media in their lives. - Conducted literature review to ensure no similar instruments existed - Generated items inductively by drawing on prior qualitative research on social media mindsets (Lee et al., 2021) - Generated items deductively by reviewing research on social media attitudes, beliefs, and perceptions - Created list of 118 preliminary items
Step 2: Establishing content validity *To assess if items adequately measure the domain of interest*	Study 1 - All items were individually reviewed by two groups of experts for their content relevance, representativeness of the domain, and technical quality - Items revised for clarity, simplicity, and readability
Step 3: Pre-testing questions *To ensure questions and answers are meaningful*	Study 1 - All items were individually reviewed by members of the target population (e.g., social media users) who verbalized their process for providing answers - Items revised for clarity, simplicity, and readability
Step 4: Survey administration *To collect data with minimum measurement errors*	Study 1 (Pilot Studies 1 and 2) Administered preliminary items to two mTurk samples (total $N = 310$)
Step 5: Item reduction *To develop a parsimonious scales*	Study 1 (Pilot Studies 1 and 2) - Used classical test theory to remove items by examining inter-item correlations and item-level descriptive data - Removed items for unclear or confusing word choice - Created 12-item version of the SMMS
Step 6: Extraction of factors *To explore number of*	Study 1 Administered the scale to mTurk sample ($n = 706$) and conducted exploratory factor analysis, yielding a two-factor

Scale Development Process and Purpose	Steps Followed for the SMMS
latent constructs that fit observed data	structure ● Interpretation of pattern matrix resulted in identification of two core dimensions of social media mindsets
Step 7: Tests of dimensionality *To test if latent constructs are as hypothesized*	Study 2a: ● Administered scale to independent sample ($n = 325$) and conducted confirmatory factor analysis ● Results supported the two-factor structure of agency and valence mindsets
Step 8: Tests of reliability *To establish if responses are consistent*	Study 2a: ● Examined Cronbach's alphas for participant responses to the agency ($a = .76$) and valence ($a = .84$) mindsets sub-scales, indicating reliability of the SMM
Step 9: Tests of validity *To test whether latent dimension is measured as intended*	Study 2a: ● Assessment of convergent validity with correlation analyses indicated that mindsets are related to, but distinct from, existing social media use measures (e.g., intensity, active vs. passive use) ● Examinations of predictive validity with linear regressions indicated that social media mindsets are significantly associated with psychological well-being Study 2b: ● Assessment of divergent validity of social media mindsets with latent variable modeling indicated that mindsets are distinct from existing measures (e.g., problematic social media use, general self-efficacy) ● Examinations of predictive validity with linear regressions indicated that social media mindsets are significantly associated with psychological well-being Study 3: ● Further examined the SMMS's predictive validity by examining the strength of mindsets' relationship to well-being, relative to other social media use variables Study 4: ➢ Further examined the SMMS's predictive validity with correlational analyses indicating that mindsets are related to both recalled and logged social media use

Note. The nine steps of scale development and validation as outlined by Boateng et al. (2018).
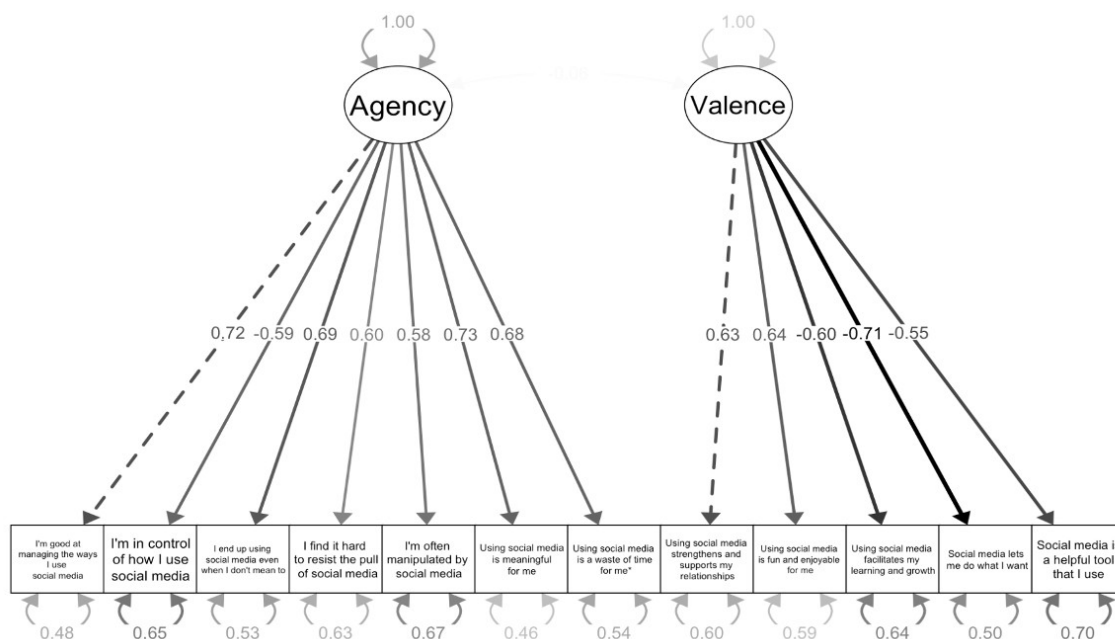
Table 2. Items and Factor Analysis Results for the Social Media Mindsets Scale

SMMS Item	Factor Loading 1	2	Communality Extraction
Factor 1: Agency (a = .76)			
I am good at managing the ways I use social media.	**-.64**	.28	.47
I am in control of how I use social media.	**-.58**	.11	.34
I end up using social media even when I don't mean to.*	**.66**	.23	.50
I find it hard to resist the pull of social media.*	**.76**	.25	.67
I am often manipulated by social media.*	**.65**	.04	.43
Factor 2: Valence (a = .87)			
Using social media is meaningful for me.	.19	**.76**	.64
Using social media is a waste of time for me.*	.14	**-.58**	.35
Using social media strengthens and supports my relationships.	.08	**.66**	.45
Using social media is fun and enjoyable for me.	.09	**.73**	.56
Using social media facilitates my learning and growth.	.01	**.62**	.38
Social media lets me do what I want.	-.04	**.84**	.70

Note. The extraction method was principal axis factoring with an Oblimin rotation with delta set to 0. The model converged in 4 iterations. Factor loadings above .50 are in bold. All items were scored on a 7-point Likert scale where 1 = strongly disagree and 7 = strongly agree. Reverse-coded items are denoted with an asterisk.

Figure 1. Confirmatory factor analysis of the Social Media Mindsets scale.

Note. Confirmatory factor analysis model depicting the Social Media Mindset Scale (SMMS) as having two constructs related to agency and valence. Factor loadings and residuals are depicted. The dotted line indicates a fixed loading. The rounded arrows pointed at each of the variables indicate their variance. The model was estimated in *lavaan* and the plot was created using the semPlot package in R.

Table 3. Descriptive Data for the Social Media Mindsets Scale

	Agency	Valence
N	325	325
M	3.27	3.31
SD	.71	.70
Kurtosis	-.32	.30
Skewness	-.01	-.63
Cronbach's *a*	.76	.84

Note. The n indicates the number of participants who completed the measure. Scores for agency mindset and valence mindset were calculated by taking the average of participants' responses to five Likert-scaled items, where 1 = strongly disagree and 5 = strongly agree. Cronbach's a was calculated for each subscale individually.

Table 4. Convergent Validity of Social Media Mindsets and Measures of Amount, Intensity, and Type of Social Media Use

	1.	2.	3.	4.	5.	6.
1. Agency mindsets of social media use						
2. Valence mindsets of social media use	.04					
3. Amount of social media use	-.34***	.41***				
4. Intensity of social media use	-.35***	.64***	.56***			
5. Active use	-.31***	.43***	.57***	.63***		
6. Passive use	-.35***	.38***	.55***	.57***	.56***	
N	325	325	325	325	325	325
Mean	3.26	3.31	3.66	3.27	2.71	2.54
SD	.71	.70	1.07	.79	.86	.73

Note. Agency and valence mindsets were measured with the Social Media Mindsets Scale;

Note. The *n* indicates the number of participants who completed the measure. Results indicate Pearson's correlations. Scores for agency mindset and valence mindset were calculated by taking the average of participants' responses to five Likert-scaled items, where 1 = strongly disagree and 5 = strongly agree. Cronbach's *a* was calculated for each subscale individually. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 5. Convergent Validity of Social Media Mindsets and Measures of Problematic Social Media Use, General Self-Efficacy, and Trait Optimism

	1.	2.	3.	4.	5.
1. Agency mindsets of social media use					
2. Valence mindsets of social media use	.08				
3. Problematic social media use	-.61***	.11*			
4. General self-efficacy	-.19**	.30***			
5. Trait optimism	-.11*	.11*	.32***		
Mean	3.63	3.41	1.78	3.80	1.83
SD	.88	.82	.79	.80	.24

Note. Agency and valence mindsets were measured with the Social Media Mindsets Scale; problematic social media use was measured with the Bergen Social Media Addiction Scale; general self-efficacy was measured with the New General Self-Efficacy Scale; and trait optimism was assessed with the Revised Orientation to Life Test. *p* < .05, **p* < .01, ***p* < .001.

Table 6. Divergent validity of social media mindsets and problematic social media use, general self-efficacy, and trait optimism

Mindset	Model type	Variable	Fit Indices				
			Chi-Squared	CFI	TLI	RMSEA	SRMR
Agency mindset	Two-factor	Problematic social media use	**1457.85***	**.80**	**.79**	**.13**	**.07**
	One-factor		1756.85***	.75	.73	.14	.08
	Two-factor	General self-efficacy	**268.08**	**.92**	**.90**	**.10**	**.07**
	One-factor		911.05***	.65	.56	.20	.17
	Two-factor	Trait optimism	**298.16***	**.88**	**.84**	**.13**	**.06**
	One-factor		857.93***	.60	.50	.24	.20
Valence mindset	Two-factor	Problematic social media use	**1405.82***	**.82**	**.80**	**.11**	**.07**
	One-factor		2416.20***	.66	.63	.16	.15
	Two-factor	General self-efficacy	**214.47**	**.96**	**.95**	**.07**	**.05**
	One-factor		1233.80***	.59	.53	.20	.20
	Two-factor	Trait optimism	**248.48***	**.93**	**.91**	**.09**	**.06**
	One-factor		1323.86***	.48	.38	.24	.21

Note. Results of divergent validity analyses for social media mindsets constructed using latent variable modeling. To test whether agency and valence mindsets were distinct from problematic social media use (Bergen Social Media Addiction Scale, Andreassen et al., 2016), general self-efficacy (New General Self-Efficacy Scale, Chen et al., 2001), and trait optimism (Revised Orientation to Life Test, Scheier et al., 1994), we compared structural equation models that treated mindsets as either a distinct construct from each measure (the two factor model) or as a reflection of a preexisting construct (the one factor model). Five model fit indices were used to compare models: Chi-square test (goodness of fit of factor model), CFI (Comparative Fit Index, higher scores indicate better fit), TLI (Tucker Lewis Index, higher scores indicate better fit), RMSEA (root mean squared error of approximation, lower scores indicate better fit), and SRMR (standardized root mean square residual, lower scores indicate better fit). Two-factor models treating social media mindsets as distinct constructs were better fitting on all indices. All models were constructed using the *lavaan* package in R.

Table 7. Results of Multivariate Regressions of Social Media Mindsets on Psychological Well-Being

	Study 2a			Study 2b		
	Agency	**Valence**	**R²**	**Agency**	**Valence**	**R²**
Eudaimonic well-being						
1. Life satisfaction	.11	.16*	.04	.09	.37***	.05
Relational well-being						
2. Perceived social support (overall)	.09	.12*	.06	.11*	.43***	.09
3. Perceived social support (family)	.04	.11	.01	.15*	.42***	.07
4. Perceived social support (friends)	.14*	.17*	.03	.10	.47***	.10
5. Perceived social support (partner)	.08	.10	.07	.09	.38***	.07
Depression, anxiety, stress						
6. Psychological distress (overall)	-.17***	-.14**	.10	-.22***	-.12**	.21
7. Depression	-.19***	-.21***	.11	-.20***	-.17***	.14
8. Anxiety	-.09*	-.09*	.05	-.21***	-.07**	.19
9. Stress	-.19***	-.09*	.09	-.25***	-.12***	.22

Note. Life satisfaction was measured with the SWLS (total); perceived social support was measured with the PSS (overall) and for each of the three subscales; psychological distress was measured with the DASS21 (overall) and for each of the three subscales. *$p < .05$, **$p < .01$, ***$p < .001$. All predictor variables were mean-centered. Social media mindsets were entered into the same regression model. Gender, age, and ethnicity were included as covariates in all models. Full results are in the Supplemental Materials.

Table 8. Results of Multivariate Regressions of Social Media Mindsets on Psychological Well-Being

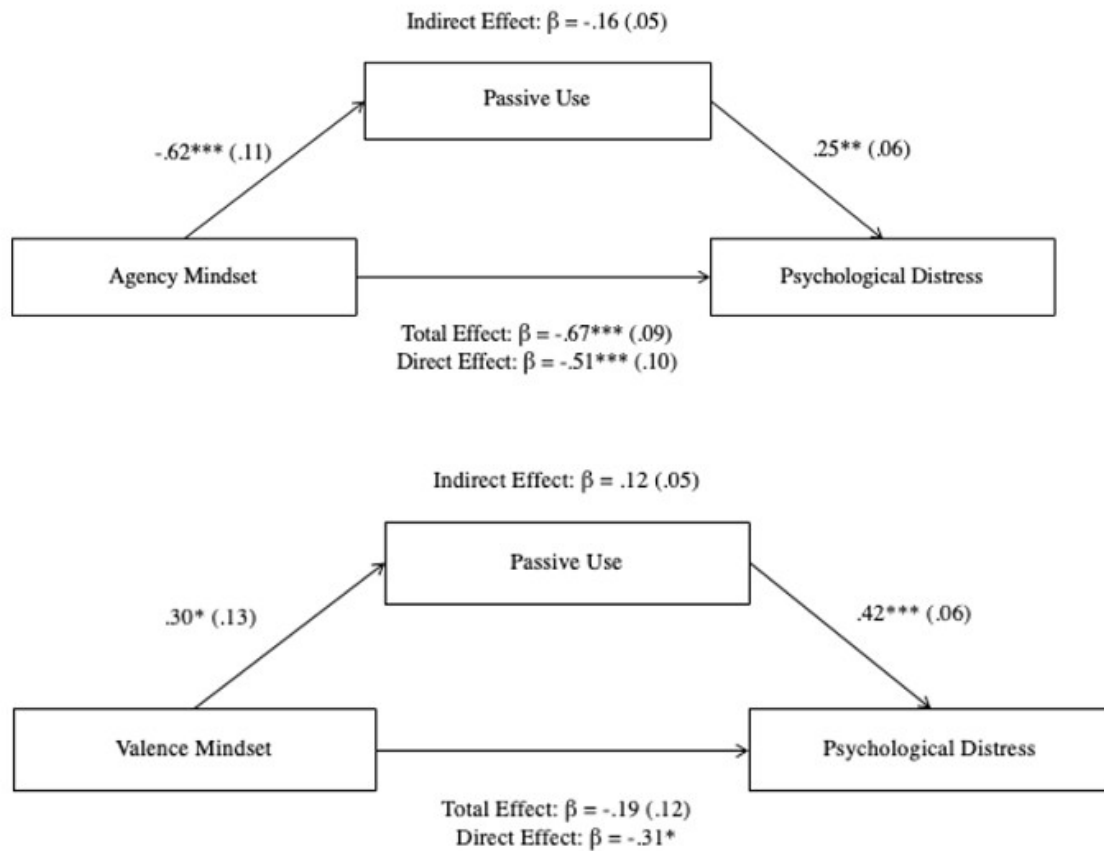|	Agency	Valence	R^2
Eudaimonic well-being			
1. Life satisfaction	-.13	.56***	.10
Relational well-being			
2. Perceived social support (overall)	.26*	.32**	.12
3. Perceived social support (family)	.14	.18	.01
4. Perceived social support (friends)	.26*	.34**	.10
5. Perceived social support (partner)	.38**	.43**	.16
Depression, anxiety, stress			
6. Psychological distress (overall)	-.33***	-.18**	.27
7. Depression	-.29**	-.26**	.19
8. Anxiety	-.32***	-.10	.30
9. Stress	-.38****	-.19*	.24

Note. Life satisfaction was measured with the SWLS (total); perceived social support was measured with the PSS (overall) and for each of the three subscales; psychological distress was measured with the DASS21 (overall) and for each of the three subscales. All predictor variables were mean-centered. Social media mindsets were entered into the same regression model. Gender, age, and ethnicity were included as covariates in all models. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 9. Stepwise Regression Results of Social Media Mindsets and Social Media Use Measures on Psychological Distress, Perceived Social Support, and Life Satisfaction

	Psychological Distress			Perceived Social Support fro	
	β	Adj. R²	ΔR2	β	Adj. R²
Block 1		.03	.05⁺		.00
Gender	.02			-.02	
Age	-.17*			-.06	
Ethnicity	.10			-.02	
Block 2		.02	.02		.03*
Gender	.003			.02	
Age	-.17⁺			-.06	
Ethnicity	.10			-.02	
Amount of use	-.16			.01	
Intensity of use	.03			.11	
Active use	.09			.18	
Passive use	.07			-.21*	
Block 3		.20***	.18***		.11***
Gender	-.007			.02	
Age	-.11			-.11	
Ethnicity	.11			-.03	
Amount of use	-.19*			.04	
Intensity of use	.20			-.04	
Active use	.10			.16	
Passive use	.002			.16	
Valence mindset	-.26*			.23*	
Agency mindset	-.32***			.21*	

Note. Life satisfaction was measured with the SWLS (total); perceived social support was measured with the PSS with the subscale for friends; psychological distress was measured with the DASS21 (overall) and for each of the three subscales. All predictor variables were mean-centered. Social media mindsets were entered into the same regression model. *p < .05, **p < .01, ***p < .001.

Figure 2. Appraisal and Behavioral Change Routes of Social Media Mindsets on Well-Being

Note. All models were specified using the Hayes Process Model. The direct lin*e represents the appraisal route and the indirect line represents the behavior change route.*

Table 10. Correlations Between Social Media Mindsets and Recalled vs. Logged Social Media Use

Social Media Use	M	SD	Social Media Mindsets	
			Agency	Valence
Recalled	4.1 hours	2.9 hours	-.10	.31***
Logged (Screen-Time)	1.3 hours	0.9 hours	-.23*	.10
Estimation error (Recall – Screen-Time)	2.8 hours	2.8 hours	-.06	.31**

Note. Social media mindsets were assessed with the Social Media Mindsets scale. Recalled social media use was assessed with a self-report item asking individuals to report how many hours they spent on social media in an average week (Ernala et al., 2020). Logged social media use was assessed with participants' submission of a screenshot of their Apple Screen-Time data, which was transformed to assess weekly social media use. Results indicate Pearson's correlations. *$p < .05$, **$p < .01$, ***$p < .001$.

[i] We note that this assessment surpasses the recommendation from Haynes et al. (1995) to obtain 5-7 expert evaluations.

[ii] While we had included these items in case phrasing affected individuals' responses, we found that people responded to these items similarly and thus removed them to reduce redundancy.

[iii] The larger project examined social media mindsets and social media use among an online sample with research objectives which are addressed in different papers. Please contact the corresponding author for more information.

[iv] We note that a similar pattern of findings emerges when examining the correlations between mindsets and other perceptual measures. Our significant, but weak to moderate correlations are in line with prior work comparing stress mindsets to other related variables (e.g., perceived stress, $r = -.34-.49**$; coping strategies, $r = .05 - .31**$; Crum et al., 2017).

[v] Participants completed approximately a total of 18 items each.

[vi]