

MindFeed: Leveraging Social Media for AI-assisted Reflective Journaling

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Abstract

Reflective journaling has long been used as a method to enhance self-insight, emotional resilience, and mental well-being. However, traditional guided journaling tools that rely on standardized prompts often lead to reduced engagement and motivation in daily use. This study presents MindFeed, an AI-assisted reflective journaling tool that generates personalized journaling prompts based on users' own social media content. The system combines three core models, including BLIP-2 for image captioning, RoBERTa for emotion classification, and GPT-4 for prompt generation, to transform user-generated Instagram or Snapchat stories into personally relevant journaling prompts to facilitate self-reflection. A user study (N = 20) compared MindFeed with a traditional guided journaling tool. The results showed that the AI-generated prompts matched traditional ones in engagement but varied in their ability to elicit deep personal insight. The qualitative results highlighted that prompt clarity, openness, alignment, and perceived authenticity were key factors influencing the user experience.

Keywords

Digital journaling, Self-reflection, Large Language Models

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1 Introduction

Young adults of the new generation face increased mental health risks not only from traditional stressors like academic pressure and career uncertainty, but also due to today's technology and social environment [36]. For instance, constant connectivity through smartphones and social media [20] makes young adults prone to persistent social comparison, and algorithm-driven content feeds may create feedback loops that reinforce negative emotions and unhealthy coping mechanisms. Guided journaling has long been recognized as a low-barrier, high-impact tool to improve introspection, build emotional resilience, and maintain mental health [34, 38]. Especially for young adults going through identity-forming transitional phases like entering university or the workforce, reflective journaling has proven to be particularly beneficial [4, 29]. However, it has become less popular among this group in today's digital age. The fixed, structured format of traditional journaling often relies on static, generic prompts to guide users in reflecting on and expressing their feelings. Lacking personal or contextual relevance, the guided journaling can feel less engaging and harder to sustain for young adults.

Currently, social media platforms like Instagram and Snapchat have become popular channels of self-expression and sharing among young adults. They commonly use multimedia formats like Instagram Stories, WhatsApp Status updates, and WeChat Moments, which blend text, emojis, images, music and videos, to document their personal experiences. These social media posts accumulate over time, gradually forming a rich digital archive of meaningful snapshots of daily life, which can serve as valuable material for facilitating self-reflection. Similar concepts have already been implemented in applications such as Google Photos. Its *Memories* feature automatically organizes and presents past life moments based on time, location, and people, encouraging users to revisit these memories and fostering greater emotional resilience. However, social media posts that combine images with captioned text are rarely repurposed for reflective journaling.



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Recently, artificial intelligence (AI) has been gradually explored to support reflective journaling. For instance, Large Language Models (LLMs) can customize journaling questions based on the user’s specific context. The system *MindScope*[31] creates a highly personalized and context-aware journaling practice by integrating behavioral data such as conversational engagement, sleep patterns, and location. The system *MyListener* [17] used contextual data from a Fitbit Luxe smartband and an LLM to generate context-aware diary prompts and replies. Additionally, prior research has investigated the integration of AI into digital journaling to minimize the required effort and empower users. For instance, *AutoJournaling*[44] analyses screenshots from smartphones to automatically generate journals. *JournalAide* [47] offers older adults with sample text generation and visual editing cues to boost their confidence, writing skills, and sustained attention. These recent works demonstrate the promise of AI-assisted reflective journaling, using personalized prompts to enhance user engagement and experience.

In this work, we extend this line of research by developing an AI-assisted journaling tool, *MindFeed*, which generates personalized prompts based on users’ own archived social media posts, namely Instagram or Snapchat Stories. *MindFeed* operates through a modular pipeline that integrates image processing, emotional analysis, and text generation. It first converts images into descriptive captions using a vision-language model BLIP-2, then detects the emotional tone of accompanying captions using an NLP classifier RoBERTa, and lastly synthesizes context-aware journaling prompts through a large language model GPT-4. This process aims to create journaling prompts that are not only emotionally profound but also personally relevant to the user’s lived experiences. This study addresses two research questions as follows:

- **RQ1:** How can we leverage social media posts to generate personalized prompts that effectively support reflective journaling?
- **RQ2:** To what extent do personalized journaling prompts, informed by social media posts, contribute to enhancing motivation and self-reflection in journaling practices?

To answer these RQs, we conducted a user study (N=20) with a within-subjects experimental design, comparing *MindFeed* with a traditional guided journaling tool. Each participant completed two reflective journaling sessions on two consecutive days, one day with *MindFeed* and one day with the traditional guided journaling tool. To evaluate the effectiveness and user experience with *MindFeed*, the study employed a mixed-methods approach that collected: (1) quantitative measures of users’ motivation, engagement, and self-insight in reflective journaling; (2) the length of journaling entries; and (3) qualitative feedback on the use of AI and social media in self-reflective journaling through semi-structured interviews.

Although we hypothesized that AI-generated personalized prompts, using personal digital content from social media archives, would enhance reflective journaling, the quantitative results did not support this hypothesis. Contrary to our expectations, AI-generated prompts did not outperform traditional prompts in terms of perceived engagement or depth of self-reflection. Qualitative findings shed light on these unexpected results, revealing that factors such as prompt clarity, openness, emotional and contextual alignment, and perceived authenticity significantly influenced user experience

with AI-generated journaling prompts. The study concludes with design implications for future AI-assisted personalized journaling and self-reflection tools.

2 Related Work

This section reviews three streams of prior research relevant to our study: the use of social media for capturing emotional experiences, structured journaling as a tool for self-reflection, and Human-Computer Interaction (HCI) and AI technologies that support reflective journaling. Based on these related work, we then present the research gap that we aim to address in this study.

2.1 Social Media for Emotional Capture

Social media platforms generate rich multimodal traces, like text, images, captions, and short audiovisual clips, that increasingly function as windows into people’s affective lives [8]. A growing body of HCI and computational-affective computing literature demonstrates that linguistic and visual features from social posts can be used to detect mood patterns, stress, and depressive symptoms at both individual and population scales [6, 11, 43]. A systematic review by Liu et al. [25] summarizes strong evidence that the characteristics derived from the user’s posts can be reliable indicators of mental health screening and monitoring. At the algorithmic level, models that extract deep emotional semantics from the histories of users and selectively address posts that signal risk (for example, emotion-aware attention networks) have shown improved detection performance in social media datasets [7].

Beyond clinical applications, social posts can be conceptualized as digital autobiographical memories or life-logs: unlike retrospective diaries, social media captures near-real-time, situated emotional moments, preserving authenticity and narrative detail [40]. However, most of the existing work focuses on classification or monitoring (for example, prediction of depressive symptoms [8]) rather than repurposing these archives to support structured therapeutic reflection. More recent studies combine photo-based lifelogs, prompts, and visualizations, demonstrating the potential of personal digital archives to scaffold self-reflection [16, 19]. However, integrating social media content into structured reflective or therapeutic practices remains largely unexplored. Emerging work suggests that intelligent systems, such as AI-assisted journaling tools, could use this data to generate personalized prompts and support deeper emotional processing [32]. This intersection of social media and guided reflection offers a promising avenue for mental health interventions and affective computing. Building on this foundation, our study investigates how social media-derived personal digital content can enhance reflective journaling experiences, bridging spontaneous digital expression with structured emotional exploration.

2.2 Guided and Structured Journaling for Emotional Processing

Guided or structured journaling is a well-established intervention for supporting emotional processing and self-reflection [12, 15, 46]. Classic expressive-writing research shows that writing about emotional experiences yields measurable improvements in psychological and physical outcomes. [3, 12, 33]. A longitudinal study on narrative and identity further suggests that organising experiences

into coherent stories supports meaning-making and identity development during transitional life stages such as adolescence and early adulthood [28]. Compared with free-form diaries, guided journaling gives users focused questions or themes that scaffold cognitive processing, reduce retrieval and structuring effort, and thereby increase the depth and clarity of reflection [3, 37]. Meta-analytic evidence indicates small but consistent benefits of expressive disclosure tasks for psychological functioning, supporting the therapeutic potential of structured writing interventions [12].

Traditional prompted journaling interventions typically use static, generic prompts, which can limit engagement and long-term adherence [32, 35]. Research has therefore investigated how digital delivery [26], low-friction interaction patterns [45], and how digital delivery [26], low-friction interaction patterns [45], and AI-enabled personalization [22] can increase uptake. For example, unlock-screen journaling substantially increased in-situ entry frequency compared to reminder-based methods [45]. Recent work also demonstrates that context-aware, LLM-augmented journaling can improve engagement and short-term well-being outcomes [22, 32]. Our study contributes to this evolving field by examining how personal digital content from social media can inform AI-generated guided journaling prompts, aiming to make journaling more relevant, engaging, and emotionally supportive for young adults.

2.3 HCI and AI Technologies Supporting Reflective Journaling

Within HCI, there is growing interest in technologies that support reflective journaling as a tool for emotional processing and self-awareness [16, 23, 32, 42]. Digital journaling platforms can provide structured or semi-structured prompts, personalized reminders, and interactive feedback to encourage consistent reflective practice and deeper engagement [32]. Studies suggest that integrating journaling into users' daily digital habits can lower barriers to sustained reflection and improve mental well-being outcomes. For example, Nepal et al. [32] show how routine, context-aware prompting supports long-term engagement, and other work, such as [48], reports that the Resonance system significantly improved participants' mental-health outcomes. Combining journaling with data visualisation for mood tracking also helps users identify patterns in their thoughts and emotions [21].

Recent advances in AI, especially LLMs, extend these capabilities of reflective journaling tools by enabling dynamic, context-aware prompt generation and nuanced emotional analysis. For example, MindScape [32] integrates time-series and behavioral sensing with LLM to generate tailored journaling cues. MyListener [18], a mobile journaling application, uses an LLM in combination with contextual data from a Fitbit Luxe smartband to produce context-aware diary prompts and responses. Similarly, DiaryMate [23] uses natural language processing to analyse a user's content and provide personalised suggestions, such as generated sentences based on keywords, to support reflection on past experiences.

However, these existing AI-assisted journaling systems base their prompts on indirect contextual signals such as location, screen time, or activity logs rather than on the actual substance of user posts, which limits personalization and emotional depth. Challenges

around maintaining prompt clarity, emotional resonance, and user trust also remain; users are sensitive to inauthenticity, misinterpretation, and opaque system behaviour [1, 2]. Ethical issues, including privacy, transparency, and algorithmic bias, are also paramount when AI systems interpret or generate content closely tied to personal emotional states [2]. Therefore, continued research in AI-facilitated reflective journaling is essential to support mental well-being while ensuring responsible use.

2.4 Summary and Research Gap

Overall, prior research demonstrates that social media archives contain rich emotional and narrative information, which can be integrated into journaling supports self-reflection. And AI-assisted tools showed potential in making journaling more dynamic and personalized. While existing AI-driven journaling systems often rely on indirect data such as screen time, location, or activity logs, they tend to overlook the users' self-expression content on social media which can provide more personal contextual and emotional information. In this study, we present MindFeed, which addresses these gaps by integrating users' own social media content into AI-generated journaling prompts. MindFeed aims to provide reflection experiences that are both personally relevant and emotionally supportive for young adults.

3 Design and Implementation MindFeed system

MindFeed is designed as a personalized reflective journaling tool that tailors guided journaling prompts to digital ephemeral content previously shared on a user's social media accounts, such as Instagram or Snapchat Stories. We focus on ephemeral social media stories because they are a popular medium among young adults to record and share life moments, often accompanied by brief captions that reveal emotional states.

3.1 User Interaction Flow

The system works in multiple phases. Users first select and upload personally meaningful digital content that articulates their relevant life experiences from their archived social media stories. Using a generative AI-supported pipeline, their personal digital content will be translated into personalized reflective journaling prompts to be used in daily journaling practice for self-reflection.

3.1.1 Phase One: User Preparation. In the preparation phase, users initiate their journaling session by selecting a self-reflection theme from a predefined list (e.g., "Relationships & Social Life" or "Academic & Work Stress") [39]. This selection serves to guide the general framework of the journaling prompts. After that, users select and upload a group of *Instagram story* and or *Snapchat memory* with corresponding captions to a secure shared folder. After the users finish this preparation, two journaling sessions are planned on the following consecutive two days.

3.1.2 Phase Two: Personalized Journaling Prompt Generation. The users' submitted digital content is processed by multiple AI models to generate personalized journaling prompts. Users are unaware of the technical processes behind the prompt generation, but are informed that the prompts were tailored to their input. In this phase, MindFeed generates six journaling prompts that strike a balance

between general reflection, emotional exploration, and forward-looking insight.

3.1.3 Phase Three: Reflective Journaling Practice. In the final phase, users engage in two reflective journaling sessions, one with standard guided journaling questions and the other with AI-generated prompts. Before each session, users receive a brief introduction explaining the process and expectations, including time commitment, privacy, and data usage. Furthermore, they are also reminded that the reflections are purely for their own exploration, with no right or wrong answers. This aims to ensure a safe and private space for their reflection. The reflective journaling session typically takes between 10 to 30 minutes. The journaling is done in an encrypted online document with a minimalistic interface design to reduce distractions and support emotional focus.

3.2 System Implementation

The prompt generation pipeline is the core of the MindFeed system, transforming user-uploaded social media stories into a set of personalized journaling prompts that align with emotional tone and individual relevance. The study has obtained consent from all participants to use their personal data in AI model for generating guided journaling questions, and it has received ethical approval through the university. The AI pipeline of MindFeed integrates three AI models: (1) BLIP-2 for image captioning, (2) RoBERTa for emotion classification, and 3) GPT-4 for final prompt generation. Fig.1 demonstrates how context and emotion data extracted from the user digital entries are structured into journaling prompts using the defined template. These models were selected based on their compatibility with lightweight, short-form user-generated data and their ability to enhance personalization in a journaling context.

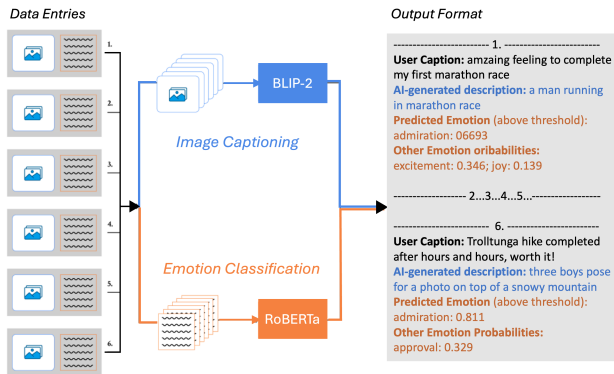


Figure 1: MindFeed AI pipeline. Uploaded social media images and captions are processed through BLIP-2, RoBERTa, and GPT-4 to generate personalized journaling prompts.

3.2.1 Image-to-Text with BLIP-2. The pipeline begins by processing user-uploaded images that are typically archived from Instagram or Snapchat stories. We utilize BLIP-2, a multimodal vision-language model that converts images into concise textual descriptions, such as "a group of friends laughing at a sunset beach party". BLIP-2 was selected for its strong generalization to informal imagery, including lifestyle content common to platforms like Instagram

and Snapchat. The model was used in zero-shot inference mode using a publicly available endpoint. Similar studies demonstrated the effectiveness of BLIP-2 in social media contexts, generating semantically rich captions from Instagram-style visual content in zero-shot settings [9, 27]. These neutral description of images offers the context information which forms a foundation for the next stages of prompt generation.

3.2.2 Emotion Detection with RoBERTa. Each image is typically accompanied by caption text. These captions are processed through RoBERTa, a transformer-based language model for emotion classification [13]. It is a lightweight and effective tool for capturing users' emotional expression through language. It uses a simplified version of the GoEmotions dataset developed by Google. The dataset contains 27 emotion labels suitable for short texts like social media captions. Fine-tuning was conducted locally using a stratified train/test split and early stopping to reduce overfitting. The classifier typically assigns one dominant emotion per caption, with fallback to top-N (N=3) probabilities when confidence is low. Recent work confirms the effectiveness of fine-tuned RoBERTa models for emotion classification in microtexts such as Instagram or Twitter captions [41].

3.2.3 Journaling Prompt Generation with GPT-4. Finally, the outputs of the first two models are passed to GPT-4 (ChatGPT) to generate a set of six reflective journaling prompts. As shown in Fig. 2, in this stage, the user-selected journaling theme, image text descriptions generated by BLIP-2, and emotion predictions from RoBERTa are synthesized by LLM generative pipelines in GPT-4, which follow a highly structured template. The system prompt passed to GPT-4 is structured into six key sections, each fulfilling a distinct function in the generation process as follows.

- **1) System Role and Objective** This section frames the model as a warm, thoughtful assistant instructed to affirm conversational and empathetic tone, avoiding clinical or overly analytical phrasing. It guides GPT-4 to adopt the voice of a reflective mentor. This role definition ensures that the resulting prompts are emotionally supportive and relatable to the target demographic of young adults.
- **2) User Context and Input** This section provides the data required for personalization. It includes: The selected reflection theme (e.g., Relationships & Social Life). The BLIP-2-generated image descriptions. The RoBERTa-predicted emotional cues.
- **3) Analysis Strategy** The model is instructed to identify overarching themes or emotional patterns across six personal digital entries rather than treating each entry in isolation. It may focus on repeated emotional states, shared motifs (e.g., recurring settings like parks), or symbolic imagery (e.g., roads, sunsets, flowers). If one digital entry is especially striking, it may be weighted more heavily in shaping a specific prompt. This strategy encourages prompts that feel meaningful and contextually rooted rather than generic or repetitive.
- **4) Prompt Generation Criteria** In this section, we defined the criteria for prompt generation. These criteria include encouraging interpretation and identity exploration, avoiding yes/no questions or a diagnostic tone, using symbolic

LLM Input Prompt

1. System Role and Objective

You are a warm and thoughtful assistant tasked with generating a set of 6 reflective journaling prompts for a self-guided journaling app. The user is a young adult (e.g., undergraduate or recent graduate) who has selected a personal reflection theme and submitted a series of social media stories (image descriptions + captions).

4. Prompt Generation Criteria

Each of the 6 prompts must:

- Encourage emotional interpretation, identity reflection, or values clarification
- Be conversational, warm, and supportive — like a thoughtful mentor
- Avoid yes/no questions or rating scales
- Avoid generic or affirmational language
- Avoid direct references to specific text or captions — use symbolic elements (e.g., fog, togetherness, walking) when helpful
- Reflect the selected journaling theme (implicitly framed)
- Represent a coherent session — thematically consistent and interrelated

2. User Context and Input

The user has provided:

- A selected journaling theme from one of: a) Academic & Work Life, b) Relationships & Social Life, c) Self & Emotional Reflection, d) Daily Life & Personal Experiences
- A set of 6 stories, each containing:
 - Caption
 - Image description
 - Emotion probabilities (predicted or fallback to highest)

5. Literature-Inspired Prompt Templates

Draw inspiration (but do not copy directly) from reflective journaling research:

- What was your biggest challenge this week?
- How did you approach it?
- Did others play a role?
- What values were involved?

Use these only to guide structure or tone if stuck.

3. Analysis Strategy

Analyze the story set holistically, not individually. Identify emotional or symbolic patterns, recurring imagery, and values or behavior. If one story strongly stands out, you may address it specifically. If no strong emotion is predicted, fall back to the highest probability. If no strong emotion exists, focus on identity patterns, habits, or values.

6. Output Format Rules

Return only the 6 journaling prompts.

Do not:

- Number the prompts
- Add explanations or formatting
- Each prompt must be on its own line.

LLM Output

- What does accomplishment mean to you when it comes after effort, discomfort, or challenge—and how do you let that meaning settle in?
- When you're in vast or awe-inspiring places, what part of your inner world seems to quiet down or come alive?
- Think about the moments where pride crept in slowly rather than all at once—what built up to that feeling over time?
- How do you balance thrill and reflection during experiences that push you out of your usual rhythm?
- What do you learn about yourself from the places or activities that leave you speechless, like under the water or on top of a peak?
- When you think back on recent gatherings or shared celebrations, what made them feel truly worthwhile beyond just being fun?

Figure 2: Structured GPT-4 prompt template used for personalized journaling question generation.

references instead of literal ones, and refraining from affirmational or generic phrasing. These constraints ensure that the final prompts offer interpretive depth while maintaining coherence with the user's input.

- 5) *Literature-Inspired Foundations* To anchor the prompt generation process in reflective practice research, the system prompt includes several foundational examples (e.g., "What was your biggest challenge this week?"). These are not reused verbatim but serve as stylistic and structural models, helping to shape questions that encourage deeper cognitive and emotional insight.
- 6) *Output Format Rules* GPT-4 returns only the six prompts, unnumbered, with one on each line and no extra formatting or commentary. This structure ensures consistent generation of high-quality, reflective questions that are emotionally resonant and theme-aligned.

4 User Study

The aim of the user study was to investigate how MindFeed AI-personalized journaling prompts influenced users' reflective journaling practice. We gathered both quantitative and qualitative insights into user motivation, perceived competence, emotional engagement, and reflective depth. The study was conducted between April and May 2025.

4.1 Participants

Twenty participants (11 females and 9 males) were recruited via convenience sampling from the researcher's social and academic network. The participants were young adults aged 20 to 26, enrolled in higher education, and early-career professionals. The native language of the participants was either Dutch or English, and all participants were fluent English users. Participants were informed about the study's purpose, structure, data use, and privacy management. All participants provided consent for their personal data to be used in the AI model for generating guided journaling questions. After signing the consent form, they were assigned anonymous participant IDs (e.g., P01–P20).

4.2 Procedures

This study followed a within-subjects design. Each participant completed two journaling sessions on two consecutive days, one session with the traditional journaling system and the other with MindFeed system. As shown in Fig.3, in the introduction session, the participants completed a brief intake questionnaire to collect demographic information. Participants were then introduced to reflective journaling and asked to select and upload six personal social media posts from their *Snapchat Memories* or *Instagram Stories* (from the past month). For each image, they were required to provide a short English caption.

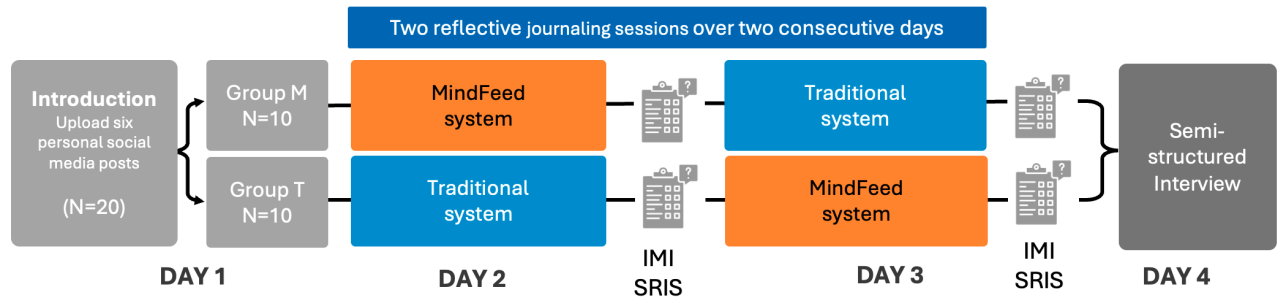


Figure 3: Procedure of the user study

To counterbalance order effects, they were then randomly assigned to two groups: one used MindFeed first (Group M, $N=10$), the other started with the traditional journaling system (Group T, $N=10$). The traditional journaling system provided users with a set of six standard evidence-based guided questions [10, 24, 37], whereas MindFeed offered participants personalized journaling questions generated by AI, which contextualized and adapted these standard questions. After each session, participants completed a questionnaire assessing their motivation and self-reflection. Lastly, the participants were interviewed to elaborate on their questionnaire responses and on what they found helpful and challenging in both systems. They were encouraged to provide feedback on the LLM-generated personalized journaling prompts and share expectations for future system improvements.

4.3 Measurements

Our study employed a combination of validated psychological instruments and additional response-based metrics to evaluate how participants engaged with and experienced the MindFeed in reflective journaling. These measures provided valuable insights into users' motivations, emotional involvement, and the extent of their self-reflection.

4.3.1 IMI and SRIS. After each journaling session, the participants completed the Intrinsic Motivation Inventory (IMI) [30] and the Self-Reflection and Insight Scale (SRIS) [14]. IMI (7-point Likert scale) was used to assess user motivation and engagement, covering four sub-scales: *Interest/Enjoyment*, *Perceived Competence*, *Perceived Choice*, and *Pressure/Tension*. SRIS (6-point Likert scale) was used to explore the cognitive and emotional depth of the reflection of the participants. Two subscales were focused on in this study: *Self-Reflection* and *Insight*. Participants completed the IMI and SRIS after each session. The full item list of IMI and SRIS can be found in Appendices A.1 and A.2.

4.3.2 Length of journaling entries. In addition, we also measured the length of the journal entries. As an additional measure of expressive engagement, each journal entry was analyzed for word count. Although the content of the responses was not interpreted or coded for meaning, this lightweight metric offered a general indication of how widely the participants responded under each condition. The average word counts were later compared across the

two journaling tools (traditional vs. MindFeed) to explore whether personalization influenced the depth or elaboration of the writing.

4.3.3 Interview Protocol. A short semi-structured interview was conducted with each participant after the completion of all reflective journaling sessions to explore subjective perceptions of prompt quality, emotional depth, and perceived sincerity. The semi-structured interviews conducted via *Microsoft Teams* videoconferencing system, recorded with participant consent, and transcribed for qualitative analysis. Each interview lasted approximately 15-20 minutes and focused on four key aspects as follows. A full list of the guiding interview questions is provided in Appendix A.3.

- 1) *Overall Experience:* Participants reflected on how they experienced both journaling sessions and whether they felt more comfortable or natural.
- 2) *Depth of Reflection and Emotional Engagement:* Participants reflected on how deeply they felt connected to the prompts and whether the reflective questions felt personally meaningful and emotionally related.
- 3) *Comparative Evaluation:* Participants compared traditional and AI-generated journaling methods in terms of personal relevance, effectiveness, and perceived authenticity.
- 4) *Future Use and Application:* The questions focused on how participants envisioned using a tool like MindFeed in their everyday lives, including potential contexts and scenarios.

4.3.4 Data Analysis. Regarding the quantitative data (IMI, SRIS and journaling entries length), before conducting statistical comparisons, data distributions will be checked using normality tests such as the Shapiro-Wilk test. Depending on the outcome, either paired-sample t-tests or non-parametric alternatives like the Wilcoxon signed-rank test will be applied to compare scores across conditions. For qualitative data, interview transcripts were analyzed using thematic analysis[5]. An inductive coding process was used to allow patterns and themes to emerge naturally from the data rather than imposing predefined categories. Coding was carried out in stages: initial open coding to highlight meaningful quotes, followed by grouping related codes into overarching categories related to depth of reflection, emotional connection to prompts, perceived sincerity, and preference. This iterative process aimed to provide a richer understanding of how participants experienced the two journaling tools.

5 Results

5.1 Engagement and Motivation (IMI)

The participants responded overall positively to both journaling sessions, showing minimal differences in how engaging or enjoyable they found them. As shown in Fig.4, the *Interest and Enjoyments* cores were nearly the same between journaling sessions with traditional ($M=5.14$, $SD=1.20$) and MindFeed systems ($M=5.11$, $SD=1.64$). The participants also reported similar results on *Perceived Competence*. The traditional system had a mean score of 5.33 ($SD = 0.96$), while MindFeed had a mean score of 5.19 ($SD = 1.36$). Participants also reported a strong sense of *Perceived Choice* in both sessions, slightly higher in the traditional system ($M = 5.93$, $SD = 0.91$) compared to MindFeed ($M = 5.78$, $SD = 0.97$). Notably, *Pressure/Tension* was low across both sessions, indicating that neither condition made participants feel particularly stressed or pressured. Paired-sample t-tests revealed no statistical significance for four subscales.

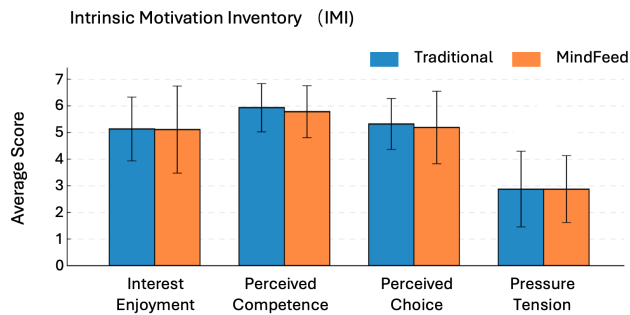


Figure 4: Result of Intrinsic Motivation Inventory (IMI) subscales

5.2 Self-Reflection and Insight Scale (SRIS)

As seen in Fig. 5, *Self-Reflection* scores were similar between traditional ($M = 4.56$, $SD = 0.56$) and MindFeed sessions ($M = 4.58$, $SD = 0.91$). However, *Insight* scores, capturing the depth of personal understanding participants gained, dropped from $M = 3.25$ ($SD = 0.45$) in the traditional condition to $M = 2.59$ ($SD = 0.69$) when AI-generated prompts were used in the MindFeed session. The paired-sample t-test shows a statistically significant difference ($p < 0.05$). This suggests that while MindFeed’s personalized prompts aimed to enhance relevance and emotional connection, they may not have consistently fostered self-reflection, leading to less in-depth insight compared to traditional evidence-based journaling questions that encourage open, general, and thought-provoking thinking.

5.2.1 Journaling entries length. To complement the survey data, average entries length was analyzed as an indirect measure of reflective engagement. As shown in Fig.6, participants wrote slightly more in response to traditional journaling prompts ($M = 55.0$ words per question, $SD = 21.6$) than to MindFeed AI-personalized prompts ($M = 49.7$, $SD = 26.9$). Although the difference is small, traditional

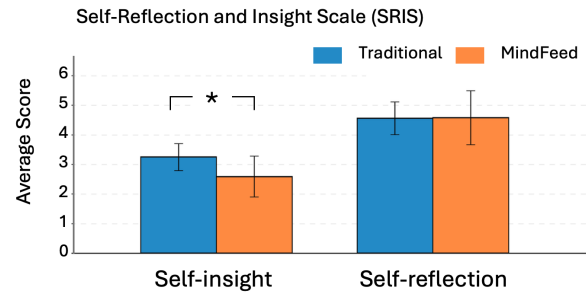


Figure 5: Result of Self-Reflection and Insight subscales

prompts appeared to elicit more consistent elaboration across participants. The greater variation in length for journaling entries with MindFeed may suggest that while some participants found AI-generated personalized prompts stimulating, others may have found them less open-ended or less conducive to free-form expression.

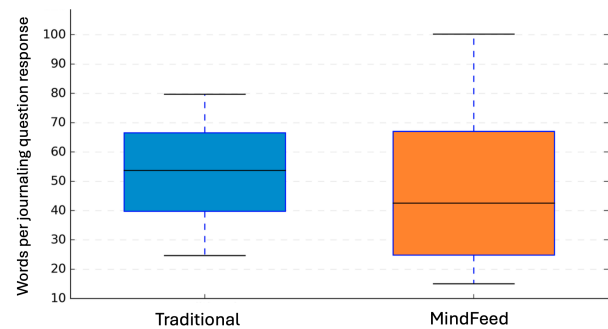


Figure 6: Comparison of the average length of each journaling entry between the Traditional and MindFeed systems

5.3 Qualitative Findings

The results of participants’ interviews revealed nuanced journaling experiences with the traditional journaling system and MindFeed. The participants shared how AI-generated personalized journaling prompts shaped or influenced their engagement and motivation. The thematic analysis synthesizes recurring patterns, drawing attention to key elements and insights that relate directly to the research questions.

5.3.1 Trust and Authenticity in AI. Participants frequently noted that the AI-generated journaling prompts felt surprisingly human-like, often detecting no obvious cues of artificiality. As one participant said: “I actually thought that you (researcher) had written them” (P19). This perceived authenticity played a key role in building a sense of comfort and willingness for self-reflection. Others also echoed similar opinion, for instance, P13 stating “It didn’t really feel like AI, because the sentences felt quite natural and also as logical questions you would expect for reflection”. One participant

(P14) explicitly appreciated the personal nature of the AI-generated prompts, stating, *"It (MindFeed) really felt as if personal questions were asked to me, which I liked"*. However, not everybody felt the same way, as P12 pointed out that some prompts felt *"unnatural and a bit confusing"*. The participants indicated that even small errors or slight inconsistencies in phrasing and context can diminish the AI-generated journaling prompts' authenticity for users, regardless of the overall positive experience with AI-assisted journaling tools.

5.3.2 Prompt Design and Comprehension. Prompt quality was a recurring point of attention in interview data. Many participants valued simplicity in journaling prompts that were direct, emotionally relevant, and easy to grasp. Some participants believed that the traditional journaling tools, with their standard open-ended questions, had greater simplicity. As P3 noted that *"I knew immediately what to answer with the traditional journaling questions, which made it easier to start"*. This kind of cognitive accessibility appears to serve as a gateway to self-reflection, as it reduces initial friction. Notably, the traditional prompts were also preferred for their broader phrasing. P2 mentioned *"They (traditional questions) felt a bit more natural, maybe because they were a bit more general"*. This aligns with a common design insight: generality can sometimes invite more genuine responses, whereas overly personalized questions may risk narrowing the reflection range.

By contrast, some participants found the AI-generated prompts *"too abstract"* or *"over-specified"*, which limited their ability to induce deeper or wider reflection. For instance, P18 noted that *"When reading certain MindFeed questions, I was thinking if I even feel that way, there seemed a disconnect between the questions and the my uploaded images"*. P16 said *"the MindFeed questions felt too directed, as if it searched for something I didn't feel."* Rather than fostering deeper reflection, this created a sense of mismatch. P6 also mentioned that *"some questions I did need to read twice to understand what they asked."* These lapses often disrupted the flow and made the reflective process feel inauthentic. When prompts are well-designed, they invite meaningful introspection; when not, they can feel performative or alienating.

5.3.3 Depth of Reflection. For many of the participants, the AI-generated personalized journaling prompts surprisingly offered a deep sensation of reflection. For instance, P14 mentioned: *"The questions dived into topics I wouldn't normally think about and it asked about deeper topics quite fast, so it was to my surprise that it was so personal."* This suggested that precise targeting can unlock new insights. Similarly, P15 described *"These questions (MindFeed) made me reflect deeply and sometimes reach conclusions I would not think about before"*. However, not all participants experienced the depth of reflection consistently with MindFeed sessions. P10 preferred the traditional guided journaling and noted that *"the second session (traditional) felt more as if I could truly reflect, because it so happened to be that those broader questions aligned with what was going through my mind that day."* Similarly, P19 emphasized that *"the traditional session questions are more open-ended, which made me actively think about what was special about that day"*. These results reveal an unforeseen trade-off between the precision and the openness of AI-personalized questions. Reflective journaling is a form of expressive writing that thrives on open-ended, exploratory reflection. Excessively AI-tailored specific prompts, however, can

reduce the practice to a mere question-and-answer exchange. This format weakens the core of reflective journaling by prioritizing targeted responses over the meandering, exploratory thought processes essential for deep introspection.

5.3.4 Prompt Effectiveness. The results also suggest that an effective question for self-reflection doesn't necessarily need to be personal to be powerful. For instance, P2 noted that: *"In the second session (traditional), there were questions that were confronting, but made me reflect on them, which helped."* Several participants emphasized how prompt structure influenced their flow. P16 said the traditional questions were *"open, but specific enough"* while P20 found them *"sometimes a bit hard [...] but once I got into it, it was fine."* This shows how effective prompts strike a balance: they should feel open, but still offer direction. P8 noted the advantages of the AI-personalized prompts, stating: *"the personal questions really gave me motivation to provide deep answers, because I'm really interested to know how I feel about things in life. The questions in the second day session (traditional) were too general for me, I know I will not use them in my daily life."* However, others, such as P14 appreciated the simplicity and openness of general prompts, *"Some of these questions were general to interpret but allowed me more freedom to reflect."* The contrast suggests that both general and personalized prompts can be effective, but effectiveness is highly context- and user-dependent.

5.3.5 Reflections on Personalization and Ethical Boundaries. While not strong enough to stand alone as dominant themes, several participants touched on important tensions around personalization and the design ethics of AI-guided journaling. Some participants questioned whether social media posts truly reflect who they are. P12 noted that *"it (AI-generated question) didn't really feel like me"*. This points to a gap between what they share online and how they feel privately. Similarly, P14 reflected that *"my personal saved Tik-Toks (not shared) tell more about me and how I feel in that period than my posted stories."* Participants agreed that personally saved content might offer a truer picture than outward-facing stories. They suggest that personalization based on social media content risks misrepresenting a user's emotional and mental state, especially in emotionally nuanced contexts. Finally, a few participants expressed low-level unease and trust issues around algorithmic tools, such as about how their data might be used. For instance, P16 expressed that *"you are not totally sure about what this application would do with your answers"*. While no one rejected the tool based on this, these concerns highlight the importance of transparency, choice, and ethical framing in future applications.

5.3.6 Varying Comfort with Digital Journaling. The results also suggest that users have diverse personal preferences regarding privacy and expression in journaling activities. While in both journaling sessions, most participants commented that they felt safe, sincere, and emotionally "held" while writing. For instance, P11 described the experience as *"a setting I didn't really struggle to answer questions in."* But this sense of emotional security was especially strong for those who were already familiar with reflective writing, like P016, who said, *"I am used to journaling, so I felt quite at ease immediately."* At the same time, some participants found the digital format to be less intimate and comfortable for journaling. For instance, P14

explained that *"although the AI questions were good, I miss writing it in my own diary, that just feels a bit more personal."* Similarly, P15 noted that she didn't feel she could fully express her thoughts on a screen: *"Even though I know nobody would read my answers, I was still hesitant to share like names of other people just to be sure."*

6 Discussion

Our study investigated how integrating users' social media content into AI-generated journaling prompts influences engagement, reflection depth, and emotional resonance. The findings show that personalization through social media content enhances perceived relevance but does not consistently increase engagement or self-insight. Quantitative measures (IMI, SRIS, and journaling entries length) indicated comparable engagement between AI-personalized and standard journaling prompts, while self-insight scores were slightly lower for AI-generated prompts. Qualitative findings highlighted that prompt clarity, openness, contextual and emotional alignment and perceived authenticity strongly shaped participants' experiences. Below, we discuss these insights and their implications for the design of AI-assisted reflective journaling tools.

6.1 Personalization and Relevance

Participants generally found AI-generated prompts based on their own social media content more personally relevant than generic prompts. Several noted that the prompts reflected topics they recognized from their posts, creating a sense of connection. This aligns with prior work showing that context-aware adaptive prompts can increase perceived relevance.[22, 32]. However, relevance did not always translate into deeper reflection. Some participants reported that prompts felt misaligned with their current emotional state or were based on content that no longer resonated. For instance, participants indicated that public posts may not capture internal experiences fully. These observations suggest that personalization might be more effective when it accurately reflects current emotional states, and when users have some control over the content informing prompts.

6.2 Cognitive Accessibility, Emotional Resonance and Trust

Prompt clarity and tone critically shaped engagement. Participants preferred prompts that were open-ended but emotionally accessible, which allowed them to interpret questions freely while guiding reflection. AI-generated prompts that were overly abstract, overly specific, or misaligned with the user's experience sometimes led to shorter or more cautious responses. In contrast, traditional prompts, while generic, were often easier to understand and produced more consistent elaboration. These findings suggest that journaling prompt design is as important as personalization. Even highly relevant AI-generated prompts may fail to facilitate deep reflection if phrased in a way that increases cognitive load or feels forced. A careful balance between guidance and interpretive freedom is essential to support meaningful engagement. In addition, participants valued prompts that felt authentic and empathetic. When AI-generated prompts aligned with user experiences, they

promoted emotional openness and introspection. Conversely, misaligned prompts, or those perceived as artificial, disrupted engagement and reduced the depth of reflection. These findings align with research emphasizing that perceived authenticity is key to user trust in AI-mediated mental wellness tools [1].

6.3 Implications for Young Adults and Digital Reflection

Participants highlighted the potential of MindFeed as a scaffold for young adults who may be unfamiliar with structured reflection or struggle to initiate journaling. AI-generated prompts helped them identify topics they might otherwise overlook and guided reflection on social comparison, identity, and emotional well-being. At the same time, some participants still preferred traditional or pen-and-paper formats, especially for highly personal topics, underscoring that digital tools should complement rather than replace existing reflective practices. These findings suggest that AI-driven journaling can lower barriers to self-reflection, normalize emotional check-ins in digital-native populations, and provide personalized scaffolding. Tools like MindFeed may be particularly beneficial for users seeking guidance rather than full autonomy in reflection.

6.4 Limitation and Future Work

This study has limitations that should be considered when interpreting the findings. Firstly, regarding the user study, the user study consists of two journaling sessions per participant, which can not fully capture patterns of long-term engagement or the evolving depth of reflection with AI-personalized prompts of MindFeed. The limited sample size restricts the generalizability of the findings. Future work should therefore investigate longer-term journaling interventions with larger and more diverse participant groups to better understand sustained engagement and reflective outcomes. Secondly, technically, the AI-generated prompts were derived from instructions fed to the LLM, but these prompts were not systematically tested or optimized prior to the study. As a result, variability in wording, specificity, and emotional alignment may have affected the quality of the AI outputs and contributed to the uneven reflective responses we observed. Future work should carefully evaluate and iterate on the prompts used to guide the LLM to ensure consistency, clarity, and emotional relevance.

Besides that, the system relied solely on publicly visible social media posts. As participants noted, these posts do not always reflect their internal emotional states, which sometimes led to misaligned prompts and reduced depth of reflection. Future work could explore additional personalization sources, such as saved posts, private notes, or short mood check-ins, to better capture users' nuanced emotional experiences. Language and cultural factors may also have influenced comprehension and emotional resonance, as the prompts were in English while some of the participants' native language was not English. Designing for multilingual and culturally sensitive contexts could improve accessibility and reflective alignment. Finally, the current system was largely one-way: participants could not iteratively guide or adjust the prompts. Introducing feedback mechanisms or interactive personalization could improve engagement, trust, and the meaningfulness of reflection. Together, these

limitations suggest that effective AI-driven journaling requires careful attention not only to personalization but also to prompt clarity, emotional alignment, user agency, and ethical data use.

7 Conclusion

This study compared the efficacy of AI-generated prompts—personalized from participants’ social media stories against traditional theme-based prompts for facilitating self-reflection in young adults. While both types of prompts were perceived as similarly engaging, AI-generated prompts appeared less consistent in fostering deep self-insight. Traditional prompts were often easier to interpret, whereas AI prompts required careful calibration to feel relevant and emotionally safe. When aligned well, however, personalized prompts encouraged powerful introspective moments. The findings suggest that AI-assisted journaling tools can offer meaningful support for reflective practices, especially among digital-native users. However, their design must carefully navigate the well-established trade-offs between specificity and openness, and between personalization and user autonomy. MindFeed represents a promising step in exploring how everyday digital content can be repurposed for self-reflection journaling. Future research should continue to build on these foundations by testing more adaptive systems that tailor prompts in real-time based on user mood or journaling patterns. Long-term studies would help assess whether AI-assisted journaling creates lasting benefits for self-awareness and emotional regulation.

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A Appendices

A.1 Intrinsic Motivation Inventory (IMI) Items

Participants completed the following items after each journaling session using a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree). Items are adapted from the original Intrinsic Motivation Inventory (IMI).

Interest/Enjoyment

- I enjoyed doing this journaling writing exercise.
- I found the journaling prompts interesting.
- I liked thinking about these prompt questions.
- I would like to use this way of journaling for self-reflecting again.

Perceived Competence

- I felt confident while answering the prompt questions.
- I think I did well in this journaling exercise.
- I was able to put my thoughts into words well.
- I found it easy to journal with these prompts.

Perceived Choice

- I felt in control of what I wanted to write.
- I felt free in my answers.
- I had space to explore my own thoughts.

Pressure/Tension (Reversed)

- I felt stressed while answering the journaling prompts.
- The journaling session felt forced.

A.2 Self-Reflection and Insight Scale (SRIS) Items

Participants completed the following items after each journaling session using a 6-point Likert scale (1 = Strongly Disagree, 6 = Strongly Agree). Items are adapted from the original SRIS by Grant et al.

Self-Reflection

- I frequently thought about my feelings during this journaling session.
- I tried to understand why I felt a certain way while responding to the prompts.
- I was often aware of how I think about things during this journaling session.
- I found myself interested in exploring my thoughts and reasons during this session.

- I tried to make sense of my feelings throughout this journaling session.
- I was curious about how my thoughts developed during this session.
- The prompts in this session encouraged me to reflect on what I think and feel.
- I consciously spent time thinking about myself during this session.

Self-Insight

- During this session, I was aware of why I felt certain emotions.
- I felt confused about my emotions during this journaling session. (Reversed)
- During this session, I was unsure about what I was truly feeling. (Reversed)
- Reflecting on my thoughts using these prompts sometimes confused me. (Reversed)
- The prompts helped me gain a clear picture of my feelings.
- I was able to interpret my emotions well during this session.

A.3 Semi-Structured Interview Questions

1. Overall Experience

- How did you experience the two journaling sessions overall?
- Was there a difference in how comfortable you felt answering the prompts?

2. Depth of Reflection and Emotional Engagement

- To what extent did you find the prompts helpful for self-reflection?
- Which session felt more personal or emotional to you?
- With which type of prompts (traditional or AI-generated) did you feel you truly reflected? Why?
- Did the AI-generated prompts feel sincere and personal, even though they were generated by a machine?

3. Comparative Evaluation

- Which of the two methods felt more natural or effective to you? Why?
- What stood out to you about the AI-generated prompts compared to the traditional ones?

4. Future Use and Application

- Can you see yourself using a tool like MindFeed in your daily life?
- In what kinds of situations or scenarios would such a tool be helpful for you or others?