

Creatively Supporting Mental Wellbeing: A Tangible Toolkit to Scaffold Self-Tracking through Mindful Colouring

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Abstract

Paper-based journaling remains ubiquitous and provides significant potential to support mental wellbeing and inform the design of digital mental health interventions. However, it remains unclear how tangible tools can be designed to facilitate creative and artistic journaling practices. We present the design and evaluation of a tangible toolkit comprising a set of laser-cut stencils and an example-based how-to guide on self-tracking mood through mindful colouring. Drawing on the findings of a two-week field study with university students from diverse backgrounds, we demonstrate how the tangible toolkit scaffolded personally meaningful expression of mood and lived experience. Participant’s visual accounts illustrate creative stencil appropriation and individual colouring preferences in documenting and understanding mood, emotions, and feelings in daily life. Based on this understanding, we suggest shifts towards more tangible mental health approaches to support people in expressing and exploring their felt experiences in creative ways.

CCS Concepts

• Human-centered computing → User interface toolkits.

Keywords

Self-tracking, bullet journaling, mood tracking, mood journaling, mental health, mental well-being, mindfulness, creative health.

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1 Introduction

Mental health is crucial to our physical health, social wellbeing, and personal growth. However, maintaining our mental wellbeing over the course of our life remains a societal challenge. According to a recent survey, in particular, young adults aged between 18-24 are showing a rise of severe emotional distress [38]. Prioritising mental wellbeing is paramount to ensure that young adults can thrive socially and emotionally.

In recent years, there has been an increase of self-tracking technologies available on the consumer market specifically for mental wellbeing purposes [47] with young adults being early adopters [71]. Digital technologies provide significant potential to support mental wellbeing in flexible and cost-efficient ways [70]. However, dominant digital approaches to supporting mental wellbeing tend to focus on automated sensing and behaviour change: users can often find themselves taking passive roles in the production of their health and wellbeing data for the purpose of mental illness assessment. The drawbacks of digital self-tracking technologies are manifold, including inaccurate personal feedback, a lack of personally meaningful insights, [12, 47], and, overall, decreasing user engagement over time [40]. In response, digital wellbeing initiatives and detox trends [43] have emerged, encouraging self-control and mindful engagement with digital technologies.

Considering these trends and limitations of current self-tracking approaches, recent research has explored alternative customisable systems, such as paper-based journaling techniques. Journaling is a well-accepted psychological intervention which can improve mood and wellbeing[5]. Bullet journaling is a paper-based and customisable approach that supports self-reflection and personally meaningful experiences [87]. This highly personal approach to managing productivity and wellbeing can compensate the drawbacks of rigid digital self-tracking technologies. However, paper-based self-tracking approaches have limitations requiring manual effort and artistic skill [87]. In particular, there are notable discrepancies between carefully curated online displays of bullet journal content on social media and the real-world effort involved in creating journal entries in everyday life.

Drawing on personal informatics and creative health research, we address the following **research gap**: while much technology-centric efforts have focused on digitalising paper-based practices, less attention has been paid to making creative and artistic journaling practices more accessible and reducing potential journaling

barriers (e.g., searching for inspiration, recreating weekly entries and visualisations, and avoiding common pitfalls). Our work improves understanding of how paper-based journaling practices can be scaffolded by tangible design artifacts. Focusing on student mental wellbeing as an exemplar, we provide **two contributions**.

Firstly, we present the iterative design process of a tangible toolkit comprising three laser-cut stencils made of transparent tinted cast acrylic sheets and an example-based how-to guide on self-tracking through mindful colouring. The tangible toolkit aims to: (1) scaffold creative journaling practices; (2) inform the design of journaling support tools; and (3) complement digital mental health interventions.

Secondly, we provide an empirical contribution by evaluating the tangible toolkit with university students from diverse cultural backgrounds. Participants' accounts demonstrate how the tangible journaling toolkit facilitated mood tracking in creative ways. Participants (1) copied, adapted, and remixing the examples provided in the how-to guide and developed their own custom visualisations using realistic and abstract styles; (2) defined mood and related lived experiences using personally meaningful terms, descriptions, and emojis; (3) utilised distinct colour selection strategies based on personal experiences, social norms, and changing design intentions; (3) and applied annotation and bricolage techniques informed by Western and Asian journaling practices. In doing so, participants reported enjoying the experience of coloring and becoming more aware of their moods, feelings, and emotions in daily life.

Ultimately, we highlight the importance of acknowledging the value of paper-based journaling approaches as research tools in understanding lived experiences and as interventions tools in supporting creativity and wellbeing. We specifically demonstrate the potential of designing tangible support tools to scaffold artistic journaling practices and contribute to shifts towards more creative mental wellbeing approaches that support people in freely exploring and expressing their felt experiences in daily life.

2 Related Work

We first provide an overview of personal informatics systems and then motivate our work on creatively supporting mental wellbeing through self-tracking.

2.1 Personal Informatics

Self-tracking is not a new phenomenon: throughout human history, individuals have consistently engaged in self-tracking, documenting various aspects of their lives, measuring their bodies, and seeking self-awareness. Within the HCI research, studies on life logging [79] and self-care technologies [67] have documented how people collect and reflect on personal information. Li et al. [54] coined the notion of personal informatics to characterise a new class of wearable and mobile systems aimed at supporting people in reflecting on personal data for the purpose of self-reflection and self-knowledge. From then on, researchers have investigated how people use and abandon personal informatics systems [34, 51], derived different types of models and frameworks [27, 65], and explored the design space of novel self-tracking tools in creative ways [6, 44, 96].

Human-centred research studies have explored a wide range of self-tracking practices, from activity tracking [34] to food journaling [21], productivity tracking [19], sleep tracking [55], life journaling [25], symptom tracking [8] and even dream tracking [36].

However, there are existing tensions between technologies that embody biomedical models and peoples' sense of agency in using self-tracking technologies in everyday life [7, 28, 59]. Nunes et al. [67] have motivated a shift from "medicalised" to "mundane" self-care technologies to highlight the importance of supporting people's agency and quality of life. In this vein, Karkar et al. [41] highlighted the importance of balancing the rigour of scientific approaches and the complexities in everyday life within the context of self-experimentation. People typically intertwine different self-tracking tools and styles according to their individual and changing circumstances in daily life. Based on this understanding, much attention has been paid to understanding and supporting people's lived experience [77] through a variety of approaches, including personalisation [41], manual tagging [84], semi-automated tracking [45], and social scaffolding [57]. Customisable self-tracking approaches have been shown to be able to support a sense of identity [52] and tangible self-tracking tools have been effective in supporting self-reflection, self-awareness, and self-regulation [92].

2.2 Mental Wellbeing

Mental health refers to "a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community" [68].

Galderisi et al. [29] contribute a more holistic understanding by defining mental health as a "dynamic state of internal equilibrium which enables individuals to use their abilities in harmony with universal values of society. Basic cognitive and social skills; ability to recognize, express and modulate one's own emotions, as well as empathize with others; flexibility and ability to cope with adverse life events and function in social roles; and harmonious relationship between body and mind represent important components of mental health which contribute, to varying degrees, to the state of internal equilibrium." Based on this understanding, mental health entails emotional (e.g., happiness), psychological (e.g., personal traits) and social dimensions (e.g., feeling a sense of belonging) [86]. Mental health can be described by a wealth of personal health and behaviour data in practice. These indicators of mental wellbeing can occur regardless of the presence of mental illness [3, 86]. We adopt the term mental wellbeing to focus the scope of this work on preventative interventions and people without a clinical mental illness diagnosis.

According to a systematic literature review, digital health and wellbeing technologies typically implement self-tracking approaches to support people in documenting, reflecting on, and sharing their wellbeing with family members, caregivers, and clinicians [78]. MindNavigator is a workshop format aimed at supporting the mental wellbeing of college students [53]. Taking part in the MindNavigator workshops, students were encouraged to create stress profiles, identify stressors and relievers, set personalised goals, document their health behaviour, and adjust their wellbeing goals. A qualitative research study revealed that students preferred to document



Figure 1: Overview of the tangible journaling toolkit comprising laser-cut stencils and a how-to guide.

health behaviour that is related to mental wellbeing conditions rather than focusing on documenting their mental wellbeing [42].

2.3 Towards Creatively Supporting Mental Wellbeing through Self-Tracking

The previous sections have reviewed related works on personal informatics and mental wellbeing. Here, we highlight the potential to bridge these bodies of work and explore how mental wellbeing could be supported through scaffolding creative self-tracking approaches with a focus on young adults in university settings.

Recent work has looked at university students' creative mental wellbeing practices and identified that student engage in creative writing and bullet journaling to express emotions and relax [72]. Bullet journaling is an analogue and customisable system for organising and documenting daily life. Bullet journaling systems can be tailored according to personal self-tracking intentions and can help to document habits, moods, and symptoms [1, 9, 88]. While bullet journaling has a strong online presence and community, learning how to create personal visualisations, avoid common pitfalls, and gain value from journaling can be challenging in practice. It remains unclear how artistic journaling practices can be facilitated and made more accessible to people with diverse journaling experiences and creative capacities [9, 87]. Here, we investigate the following research question by focusing on student mental wellbeing: (1) how can a tangible toolkit be designed to facilitate creative journaling practices?; (2) what benefits and limitations does it provide in everyday life?; and (3) what transferable insights can be derived to inform mental wellbeing interventions? To explore this design research space, we present the design and evaluation of a bullet journal toolkit comprising a set of laser-cut stencils and an example-based how-to guide.

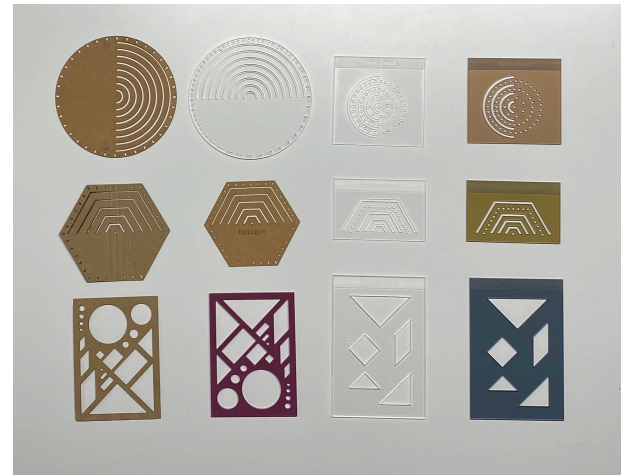


Figure 2: The iterative stencil design process involved testing different materials.

3 Design of a tangible journaling toolkit

3.1 Context

Bullet journaling is an analogue and customisable journaling approach that can flexibly be used to document personally meaningful experiences. It consists of different building blocks: components for rapid logging, such as short sentences, and pictorial trackers. Pictorial trackers typically have the following key features: they display pictorial shapes (e.g., flowers or cats); they consist of segments that represent days, weeks, or months; they are defined by a name (e.g., mood) and custom parameters (e.g., good, OK, bad) that are associated with a colour scheme (e.g., good: green); and they can be coloured in to log data. In this way, people can colour pictorial trackers and reflect on their logged data in one view.

3.2 Design Objectives and Process

We present the design of a bullet journal toolkit, a set of tools that comes in a zipper wallet comprising a dotted paper notebook, different types of pens, tailored laser-cut stencils, and an example-based how-to guide (Figure 1). The toolkit was iteratively designed and evaluated within a multi-disciplinary team, including one artist, one creative writer, and a group of HCI researchers. Our design work was informed by design probes which feature characteristics, such as having tangible and material forms, fostering creativity and reflection, supporting participants in expressing lived experiences, and enabling researchers to interpret and analyse situated data to inform design [11, 16, 93]. Based on this understanding, our objectives were to produce a tangible toolkit that could be flexibly used to (1) scaffold customisable self-tracking through mindful colouring; (2) gain an understanding of health and wellbeing needs; and (3) derive implications for health and wellbeing interventions.

3.3 Laser-Cut Stencils

Since prior work has documented barriers to bullet journaling, including required effort, skill, and time in creating and reusing

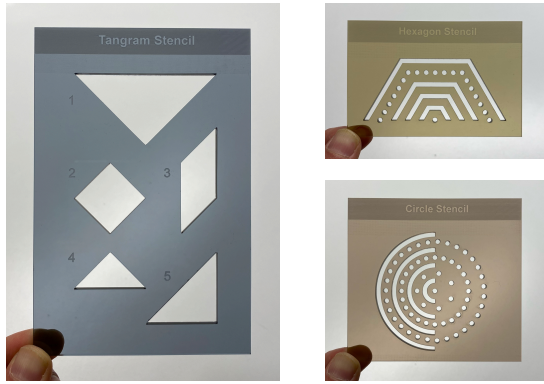


Figure 3: Tangram stencil, hexagon stencil, and circle stencil.

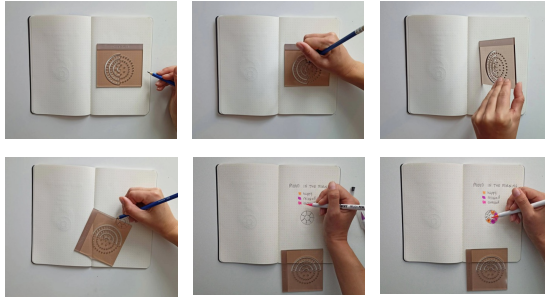


Figure 4: Use of the circle stencil.

pictorial trackers [1, 9, 88], we explored the design space of tangible support tools. We tested existing commercially available alternatives and found that predefined printable templates might not sufficiently support flexibility and that existing opaque stencils might lead to significant usability issues (Figure 2). Based on this understanding, we iteratively explored different stencil materials, shapes, and sizes and concluded that transparent tinted cast acrylic sheets seemed to be particularly appropriate considering aesthetics and usability (Figure 3). The toolkit includes a tangram stencil, circle stencil, and hexagon stencil (Figure 4). Based on the notion of boundary objects [18, 23, 83], the design team framed the stencils and the how-to guide as support tools which aimed to be robust enough to facilitate the creation of pictorial trackers by hand and be flexible enough to support people’s individual data collection and visualisation preferences.

3.4 Example-Based How-To Guide

Drawing on prior work that has documented the challenges of beginning to engage in self-tracking [17] and the value of receiving inspiration and support from self-tracking communities [9], we iteratively designed a how-to guide according to the concept of example-based learning [91]. The how-to guide introduces the concept of bullet journaling and provides a set of example pictorial trackers demonstrating how the stencils could be used (Figure 5&6). The how-to guide concludes with helpful hints, such as using some pages to test the stencils and documenting positive things in life.

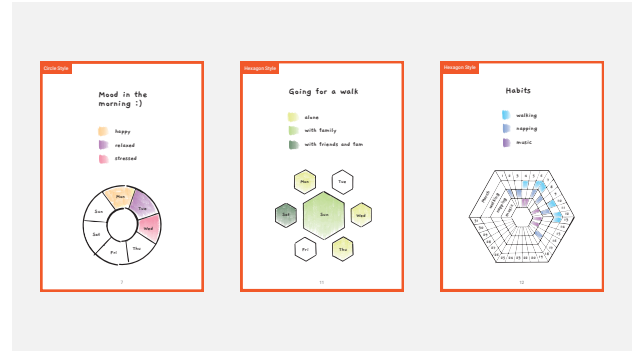


Figure 5: How-to guide shows example visualisations.

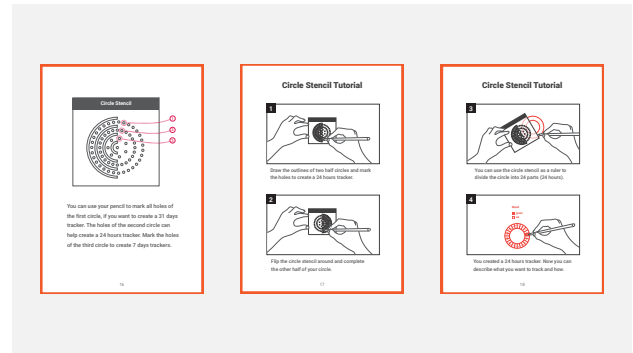


Figure 6: How-to guide shows circle stencil instructions.

The narrative, instructions, and tone of the how-to guide benefited, in particular, from the contributions of the creative writer and artist.

4 Evaluation of a tangible journaling toolkit

We conducted (1) a pre-field study interview; (2) a two-week long field study; and (3) a post-field study interview to investigate how people use and experience the tangible toolkit in everyday life. This research study received departmental university research ethics approval.

4.1 Pre-Field Study Interview

Firstly, we conducted a one-on-one session. During this session, the researcher provided an overview of the study. Then a semi-structured interview was conducted to collect participants’ demographic data and understand mental wellbeing views, and prior experiences of using self-tracking technologies. Next, participants were encouraged to explore the tangible toolkit and ask questions. After the exploration phase, the researcher provided more details on the two-week field study explaining that participants could freely use the toolkit in their daily lives. The first session lasted about one hour and was audio-recorded.

4.2 Two-Week Field Study

Secondly, we conducted a two-week long field study of the tangible toolkit. Participants were encouraged to use the tangible toolkit to document their moods and related lived experiences in personally

meaningful ways. Considering the diversity of mental wellbeing views and language preferences, we supported participants to use their language of choice when using the journaling toolkit [80]. Participants were asked to take photos of their journals and blur contents that they did not feel comfortable disclose prior to sharing their photos with the research team.

4.3 Post-Field Study Interview

Thirdly, all participants were invited to a one-on-one follow-up semi-structured interview to talk about their experiences of using the toolkit and their diary entries. The interview guide covered the benefits and limitations of using the toolkit and experiences of creating text entries and coloring in mood visualisations. Particular attention was paid to the ways in which participants appropriated the toolkit to meet their personal journaling goals, mood tracking preferences, and emotional needs. This session were lasted about 60-90 minutes. After completing the interview, participants were compensated with a £30 digital high street voucher or cash. All interviews were audio-recorded and transcribed.

4.4 Participant Details

Ten participants were recruited through a university student recruitment platform and social networks. Participants were originally from four countries (one from the United Kingdom, one from the United States, two from India, four from China, and one from Hong Kong) and pursued undergraduate and postgraduate studies at a university in the UK (three bachelor's degree, six master's degree and one PhD's degree). Participants were enrolled in diverse study programmes (i.e., HCI, Psychology, Computational Art, Medical Robotics, Statistics, and Economics). Among the participants, nine identified as female and one identified as male. Eight participants had prior experience of using paper notebooks and three had prior experience of using the paper bullet journal approach specifically. Nine participants used digital self-tracking tools, such as fitness tracking devices and health and wellbeing apps.

4.5 Data Analysis

Interview transcripts were analysed according to an inductive approach to reflexive thematic analysis [13, 14]. Nvivo 14 was used to analyse transcripts and Figma was used to analyse shared photos of journals. Chinese quotes were translated by a research team member with Chinese language proficiency. The analysis aimed to investigate participants' own perspectives and understanding of the benefits and limitations of the bullet journal toolkit. We iteratively discussed codes and themes in weekly meetings. At early phases, the analysis was based on notes taken during the pre-field study interviews and then supplemented with post-field study interview data leading to the following initial overarching themes: pressure in student life, prior self-tracking practices, perceived pros and cons of bullet journaling, deciding what to track and how to track, creating and coloring in visualisations, and self-reflection. Photos of journals were thematically analysed by iteratively developing descriptive summaries for each participant. These visual and textual accounts helped making sense of the interview data and developing an understanding of the ways in which participants adopted and adapted the bullet journal toolkit over time.

5 Findings

We first provide background by identifying student mental wellbeing challenges and describing pragmatic, emotional, and cultural challenges in adopting paper-based journaling. Informed by this understanding, we then illustrate the ways in which the bullet journal toolkit scaffolded creative practices with a particular focus on creating, colouring in, and reflecting on personally meaningful mood visualisations.

5.1 Emotional Challenges in Student Life

All participants self-reported experiencing varying degrees of stress and different types of emotional challenges, including academic work, interpersonal relationships, finances, time management, and post-study employment. In addition, participants highlighted the emotional challenges of pursuing an academic degree in a foreign country, such as P09:

“大家都是去另外一个国家学习，然后用外语去学习，就是这件事本身就会有一点点的压力。所以对我来说非常的正常的，一个人有压力。”

“All of us are studying in a foreign country and using a language that's not our native one, so there's inevitably a bit of pressure that comes with it. So, for me, it's completely normal to feel a certain amount of stress.” (P09)

Participants emphasised the complex interdependencies between studying and living life. For example, P02 set productivity as an indicator of how happy she was, as she had to finish her dissertation on time (see figure 10). P10 subdivided her emotional challenges into competitive external and internal stressors. The former stemmed from the pressure of draft deadlines set by her MSc dissertation supervisor, while the latter resulted from her high personal ambitions and pressure arising from constant social comparison:

“So external pressure like with the dissertation project working right now, it's like external sources that require you to do things by a certain period of time. That can be quite stressful. So, like my supervisor is asking for a draft, things like that put me under pressure. And then there are internal pressures like the pressure you put on yourself. So even though the external pressure might be my supervisors asking for a draft, the internal pressure is that I want to do a really good job, and I want to spend the most time working on it, which just gets you quite stressed and anxious..... And also having being surrounded by lots of other people who doing the same thing and seeing other people make progress in some ways that you should be making that also as a pressure.” (P10)

Furthermore, participants documented emotional challenges relating to managing interpersonal relationships. For example, P08 reported that spending time socialising led to exhaustion and guilt (*“I was getting very frustrated with the socializing aspect of the thing, because every day when I was going to the library, I was meeting people, it was actually unplanned in the first week.”*) (P08). Another illustrative example for the emotional challenges of managing social student life was P07, an undergraduate student, who reported

that arguing with her boyfriend contributed to mood fluctuations, which she captured in her mood tracker (see figure 10).

5.2 Emotional Challenges in Adopting Paper Bullet Journaling

While participants reported using digital and paper-based self-tracking tools to self-manage their mental wellbeing in daily life, they explained that looking at bullet journaling practices online can create emotional pressure to produce visually perfect entries, purchase the best supplies, and maintain journaling habits. For example, P04 highlighted a strong focus on aesthetics (*"I'd say bullet journal definitely has a big aesthetic. I think that was how I learned about bullet journals a couple of years ago like you see a lot of very aesthetically pleasing bullet journals."* (P04)). The presence of polished online content and templates made participants perceive bullet journaling as difficult to master. P02 described her prior perceptions of bullet journaling as being time consuming:

"I even bought a bullet journal once because I liked the cover, but I just wrote on it like a normal piece of paper because I don't really know what bullet journaling is about and I guess it feels like more work than I felt like doing. I had seen YouTubers talk about their bullet journals before, and they would have detailed sketches and other decorations in them, and I just didn't feel like taking the time to draw all of those things just for a journal." (P02)

Exploring the circle stencil as part of pre-diary study session, P04 expressed insecurity and surprise regarding the visual appearance of her mood tracker based on her prior experience of viewing bullet journal content online: (*"This is probably the first perfect circle I've ever had, because usually I draw them freehand. I think that's the way that I watched a lot of YouTube videos. [...] Hopefully, this is okay."* (P04))

5.3 Contextual Challenges in Adopting Paper Bullet Journaling

In addition to potential emotional challenges in engaging with bullet journaling online, participants drew attention to cultural differences that can impede the appropriation of bullet journaling practices. Participants, such as P07 and P06, explained that the paper bullet journaling is more common in the Western part of the world and that typical bullet journaling tools, such as brush pens, are more suitable for English calligraphy rather than Chinese characters. In particular, three participants from China expressed their unfamiliarity with brush pens and their preference of using markers for colouring.

"这个bullet journal中的guidance是一个我觉得是在西方文化里面一个比较典型的手帐文化.....Brush pens在我眼里也是非常经典的一个欧美人会用的东西, 因为他们会用这个东西来写艺术字, 英语的艺术字用brush pens很好用, 但是你说写中文的话, 你就是要毛笔, 但是毛笔这个东西好像又跟色彩没什么太大关系。"

"The guidance I find in this bullet journal seems to reflect a typical journaling culture within the Western context."

And brush pens, from my point of view, are quite characteristic of Western practices. They're commonly used for creating artistic lettering, which works wonderfully for English. However, when it comes to writing in Chinese, traditional calligraphy brushes are more fitting, and they don't have much to do with using coloured brush pens." (P06)

In East Asian regions, journals commonly comprise images and text, and the use of tools, such as washi tape, fountain pens, coloured inks, and leather-bound notebooks, and personal mementos (such as tickets and photos). These journals place an emphasis on aesthetic page layouts and often involve extensive use of adhesive elements, leveraging creative bricolage techniques. Participants explained that this intricate and decorative style of journaling is typically used to capture memorable life events. Conversely, the Western-informed paper bullet journal practices, that are prominent on platforms, such as YouTube, tend to focus more on productivity entries, creative visualisations, and hand-drawn decorations. Participants found the Western approach intriguing, as it seemed to offer a more efficient way to track mood and other aspects of daily life. However, they highlighted that misalignments between language choice, availability of appropriate tools, and prior journaling experiences need to be addressed to support meaningful engagement. For example, P01 explained that the difficulty of finding decorative supplies in the UK, such as washi tape, led her to shift her focus away from her prior journaling habits.

"伦敦当地的文具店我觉得不太好, 有些纸又太差了或怎么样, 他们有的时候我觉得可能是出于环保的原因, 所以渐渐的好像环境就有点改变了我的习惯。"

"But the local stationery shops in the UK sometimes don't offer the same level of variety or quality that I'm looking for. The paper quality might not be as good, and it seems like they might prioritize environmental sustainability over some of the aesthetic aspects that I value in bullet journaling. This shift in the stationery landscape has gradually changed how I approach my journaling habits." (P01)

5.4 The Bullet Journal Toolkit Scaffolded Creative Journaling Practices

Participants received a set of stencils and a how-to guide aimed at scaffolding bullet journaling practices on mood tracking and visualisation. In the pre-diary study session, six participants used the circle stencil, three used the tangram stencil, and one of three participants used both the tangram and hexagon stencils. In the diary study, eight participants used the circle stencil, four used the tangram stencil, and two used the hexagon stencil. The circle stencil was the most popular choice, commonly described as the most functional and easiest to use. The second most popular stencil was the tangram stencil. Although participants reported that tangram-based visualisations are less common on social media platforms, they valued the flexibility of the tangram stencil in creating different types of shapes.

Participants applied the tangible circle, hexagon, and tangram stencils in creative ways by remixing the examples provided in the



Figure 7: Creative use of the circle stencil: participants used annotation techniques to contextualise their mood in everyday life, utilised text and emojis to describe mood, and intermixed colours and entries to illustrate the complexity of their feelings and emotions. The Chinese entries translate to the following text: "my throat might be itchy due to COVID, the paper in the notebook is thin, and the anxiety comes from the worry about not being able to find a job."

how-to guide, developing their own custom visualisations, exploring realistic and abstract visualisation styles, and applying different annotation and bricolage techniques. In doing so, participants documented their mood and related lived experiences, including sleeping (P01, P02, P05, P06, P08, P09), exercising (P01, P02, P05, P09), working (P01, P02, P09), socialising (P01, P05, P08), cooking (P02, P05), smoking (P02), and expenditures (P05).

Participants found that the how-to guide and stencils struck a balance between offering examples to imitate and providing sufficient creative space to foster exploration and learning. For example, P02 had a habit of drawing illustrations in her journal and initially chose the butterfly-shaped tracker example during the pre-diary study session and during the first week of the diary study. In the second week, she demonstrated her agency and creativity by using the tangram stencil to create seven original trackers (see Figure 11). While she initially described the how-to guide as a source of inspiration, she particularly valued the creative process of crafting her own visualisations ("I think I enjoyed more just making shapes on my own than like, following just the shapes provided."). In this vein, P08 explained that the how-to guide can support ideation and that she was leaning towards freely writing and sketching mood

visualisations over the course of the diary study ("I think they are good, using stencils to get an idea about how the trackers should look like. But I think after a certain amount of time, I would actually start drawing stuff by myself, because it's more spontaneous and it's easier for me to just like draw, like by hand, just like sketching. It's like ideation." (P08).

P02 and P09 utilised the basic functionality of the hexagon stencil in creative ways. For example, P09 created a custom hexagon-based visualisation to document his gym and running activities during his trip to China (see Figure 12). In one case, it became clear that the appropriation of the bullet journal toolkit was social and collaborative. P02 explained that her boyfriend, who attended a fashion design school, also used the tangram stencil for doodling on paper, finding it enjoyable ("He might have been creating shapes for like, yeah, I don't know what he was doing them for honestly, he was just using like the lines, like draw straight lines and drawing little shapes on his page." (P02).

Participants' visual accounts illustrate a diversity of visualisations depicting their lived mood experiences. Participants drew on the bullet journal toolkit to support ideation, copy examples, remix



Figure 8: Creative use of tangram stencil: participants copied example visualisation shown in the how-to guide, such as the butterfly and swan visualisation. In addition, they created custom realistic visualisation, such as a feather, and abstract visualisations by organising shapes according to the gestalt principles of design. Participants applied holistic journaling styles by documenting their mood, work, sleep, and illness.

content, and innovate on their own personally meaningful visualisation (e.g., P02 used ship-shaped trackers to document moods during her trip (see Figure 15).

5.5 Individual and Cultural Factors Influenced Colour Choices

Bullet journal visualisations are typically accompanied by a legend that assigns meaning to a colour (e.g., orange = feeling good). Participants' understanding of colours and colour choices seemed to be influenced by different factors, including their personal experiences, social norms, and cultural influences.

Participants assigned colours to mood experiences according to human evolution theories and cultural values (e.g., "Red means danger, but there is no red, so pink." (P02). P09 reported that when defining the meaning of colours, he thought of traffic lights, where red signifies stop, yellow means caution, and green means pass ("I refer to the traffic light." (P09). Furthermore, participants referred to their personal experiences and upbringing. For example, P10 used purple to represent "feeling asleep" because purple reminded her of her childhood bedroom colour scheme, while P06 associated the colour purple with "feeling sick" because purple reminded her of the representation of sickness in video game characters. Furthermore, participants explained that cultural factors and idiomatic expressions influenced their decision-making in choosing colours. For example, P10, who identified as British, associated yellow with

anxiety given the English phrase "yellow-bellied," which refers to being cowardly:

"So, I don't really know where it's from, but I know that in sort of like America and England, maybe the West world democrats show we associate yellow with fear. Like if someone's really cowardly, if someone's afraid a lot, you call them yellow-bellied.(P10)"

Furthermore, participants reported being pragmatic when selecting colours. For example, P10 mentioned that she drew on the six colour pens from the toolkit to decide which six emotions to record. P06, P08, and P09 used their own colour pens to encode their mood experiences. Another colour selection strategy involved selecting highly distinguishable colours to represent two extreme emotions according to a warm-cold spectrum where warm colours are visualised in red (i.e., happiness) and cold colours in blue (i.e., sadness), as illustrated by P03:

"It's a colour theory that goes from cool to warm, from unhappy to happy, using a five-score scale. It's related to drawing and artistic elements, based on intuitive associations.(P03)"

However, this was not the norm (see Figure 13). Participants' accounts demonstrate distinct and changing colour selection strategies. For example, P02 decided to reverse the described warm-cold spectrum by using cold colours for positive emotions and warm colours for negative emotions. P01 applied an experimental strategy by frequently changing colours to create a vibrant tool and feel:



Figure 9: Diverse mood descriptors and colour choices. Participants created mood descriptors describing emotions and feelings (e.g., "happy"), combined different types of descriptors (e.g., "tired but happy"), and illustrated descriptors with custom emojis. Participants applied creative colouring strategies informed by their upbringing, social norms, changing design intentions, and prioritising the aesthetics of their custom visualisations.

“一开始好像这一周绿色会选的比较少，但是到了下一周开始就换了一些颜色，比如说瑜伽在这周变成了绿色。但是好像没有一个具体的原因就是这项运动我想要用什么颜色，整体上会想要更明亮一点的颜色”

“At the beginning, it seems that fewer participants chose green as a colour for this week. However, in the following week, there was a change in colour selection. For example, yoga became associated with green this week. But there doesn't appear to be a specific reason behind selecting certain colours for particular activities.(P01)”

Participants acknowledged misalignments between the complex and changing nature of mood and the availability of colours. For example, P05 mentioned that when feeling slightly happy, she could only use a moderately expressive colour to represent her experience:

“在我脑海里应该是有5个度的，比如说红色、橙色、黄色，然后有一个淡绿色，然后还有一个大绿色这样子。但因为我没有那个绿，所以我就用黄色代替了这样子。”

“In my mind, there should be five levels, like red, orange, yellow, then a light green, and finally a darker green. But since I didn't have that specific shade of green, I ended up using yellow to represent it.(P05)”

In practice, participants mostly used the term “happy” to describe positive feelings and used a greater variety to describe negative feelings, including “sad,” “frustrated,” “tired,” “bad,” and “anxious.” In addition, participants visually coded a wide range of habits and lived experiences to make sense of their feelings, including socialising, cooking, expenditure, sleep, step counts, energy levels, and memorable events. In doing so, participants intertwined their manual paper journaling practices with automatically collected data by digital self-tracking technologies, such as fitness wearable devices, smart watches, and smart phone apps.

5.6 Colouring Supported Mindful and Reflective Experiences

Nine participants preferred to colour in their mood visualisation in the evening and one participant took the time to colour in her visualisations during the day. This preference shows that participants adopted retrospective mood self-tracking styles. Participants described to recall and evaluate their mood states to select an appropriate colours and colour in their mood visualisations. Participants characterised this process as mindful and emotional. For example, P02 highlighted that colouring in her productivity and mood visualisations caused negative emotions on unproductive days:



Figure 10: Participants used the stencils and how-to guide to copy and adapt example visualisations. Furthermore, they applied creative journaling techniques that are more commonly applied in online paper bullet journaling communities, such as creating object displays (e.g., drawing body batteries to illustrate relationships between mood and fatigue), encoding emotions and feelings by using abstract shapes and lines, writing reflective journal entries, doodling, and using bar and line charts to document mood and related activities, such as working, socialising, and sleeping.

"So, then I'm like thinking back on the day, like was I productive? And I have to like be like, no, I wasn't really. And then colour it in. So, that was kind of like depressing, I guess. Like the day could have been pretty good. But if I felt like I wasn't productive, then it would kind of just like bring down the whole mood. So, like the first tracker, the mood tracker was like affected by that other tracker.(P02)"

However, colouring in and viewing visualisation also supported positive experiences. For example, participants reported focusing their attention on the colouring process itself: describing the experience as both enjoyable and relaxing. In doing so, P10 identified different mindfulness phases describing colour selection as mindful and colouring as mindless:

"It was really nice colouring. And it's sort of like it was nice, it was like mindful and also mindless at the same time, like the mindful aspect was picking a colour. But once I picked that, I just sort of turn my brain off while I was colouring in, it was quite nice.(P10)"

While participants day-to-day life involved the use of digital technology for work and entertainment, they valued using a paper-based and tangible journaling toolkit for a change. For example, P05 appreciated resuming paper-based journaling and characterised colouring in mood visualisations as an immersive and calm break-taking activity that evoked feelings of being connected with nature:

"我感觉已经很久没有做过这样的事情了，很喜欢这样unplug的时间，用铅笔在纸上画的触感就是有种自然的感觉。"

"It's been quite some time since I've done something like this. I must say, I really love these moments when I can just unplug and take a break. The tactile experience of using a pencil on paper gives me this wonderful sense of being in touch with nature.(P05)"

After completing the colouring, half of the participants reported reviewing their visual records. Reflecting on the completed trackers offered participants a sense of accomplishment. For example, P03 mentioned that after colouring in her visualisations, she constructively re-evaluated her emotions and reported realising that in some cases the proportion of negative emotions represented by the coloured visualisations was smaller than what she had initially anticipated:

"Actually, when I'm recording, let's say I use blue to represent being very unhappy. But after I've finished colouring, I tend to reconsider and ask myself, 'Is this situation really that unhappy?' Having the colours prompts me to re-evaluate the significance they represent. It makes me question if the scale is really as extreme as it appears.(P03)"

The other half of participants typically conducted weekly reviews, either once a week or once every two weeks. Drawing on

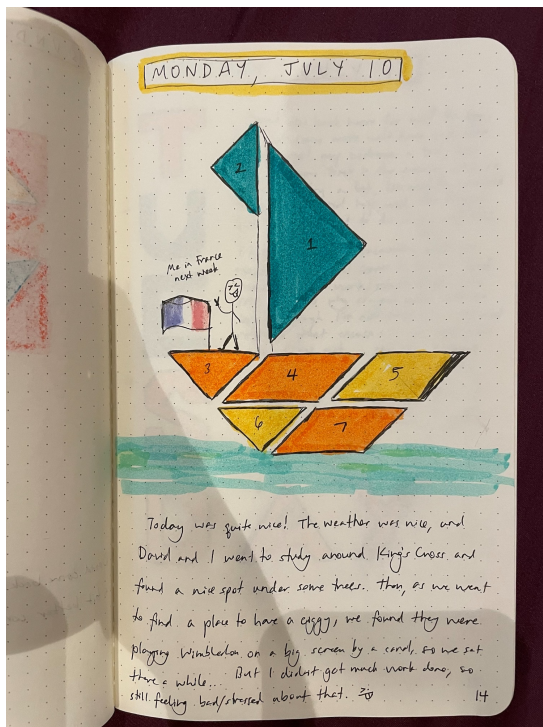


Figure 11: Participants appropriated the journal toolkit according to their unique and personal experiences in daily life. For example, P02 and P09 documented their departure to their home countries using the tangram and hexagon stencil. They expanded their custom visualisations created with the stencils by adding context with descriptive annotations and playful doodles.

the coloured visualisations seemed to expedite their reflective reviewing practices. Participants reported that the perceived intensity of the emotions they experienced, when they went through situations that evoked negative feelings, tended to be stronger compared to the perceived emotions they recalled during the reviewing process. On the one hand side, P06 reported that her daily mood was often dominated by the most intense emotions without hourly mood tracking and reviewing. On the other, P05 tracked only her overall mood for the day realising that her mood was much better than she anticipated. Participants who tracked their mood on daily basis tended to draw on the most intense feelings of the day when selecting colours and colouring in their visualisations for that day. By reviewing their mood in this way, they reported that mood trackers supported them in recalling their felt past without the need to capture all emotions in detail. For example, P03 reported that gaining an understanding of her emotions over time helped her to adjust her daily schedule more effectively. P07 concluded that the granularity of daily trackers was sufficient to support her in making sense of her mood levels:

“我就是看一下当时活的就是这个状态，比如说你当时活的每天都很难过很焦虑，或者说你当时每天都很happy很开心，有这样一个印象，我觉得就够了，不用太细的去做”

“I just look at the state I was in at that moment. For example, if you were feeling really sad and anxious every day, or if you were feeling very happy and joyful every day, having that kind of impression is enough. You don't need to get too detailed about it. (P07)”

In addition to using colours, P08 created patterns to convey emotions in artistic ways (see Figure 14): She used different types of straight and wavy lines to express her loneliness, sadness, and anger, depicting the changes in a friendship. The adoption of creative self-tracking supported participants' agency through creative self-expression and review.

Overall, six participants highlighted their enjoyment of engaging in paper bullet journaling and expressed their intention to continue using the bullet journal toolkit after the completion of the research study. For example, P5 reported being able to recognise patterns of low mood, regulate her emotions, and experience satisfaction when using the paper-based journaling toolkit:

“比如说周一周二的时候情绪会很糟糕，然后会做一些相应的调节，我觉得这个调节是我需要的，而且是我之前从来都没有做过的，所以对我来说是一个新鲜事物，我想继续尝试下去这样。然后也是让我感觉到了我是多么喜欢用这种传统

的方式去记录，就比较crafting的方式去记录我生活里面的细节。”

“For example, on Mondays and Tuesdays, I tend to feel quite low in mood. But I’ve noticed that I can make certain adjustments to improve my mood during those days. This newfound ability to regulate my emotions is something I find beneficial and it’s a practice I had never really done before. So, for me, it’s something novel and I want to continue exploring it. This experience has shown me just how much I enjoy using this traditional approach to document my life. It’s like using a crafting method to capture the details of my daily life, and it brings me a lot of satisfaction.(P05)”

6 Discussion

We have presented the design and evaluation of a tangible toolkit aimed at scaffolding creative mood self-tracking practices. Based on our findings, we highlight the importance of understanding diverse mental wellbeing needs and the significant potential of paper-based and tangible support tools to complement digital interventions and foster wellbeing through creativity.

6.1 Understanding Diverse Mental Wellbeing Needs

Supporting mental wellbeing and managing mental illness in educational settings is more important than ever considering increasing emotional, financial, and global stressors. Prior work has documented the mental wellbeing challenges of university students and highlighted the diverse needs of international students in adopting new educational systems and cultures [64]. Our work has involved undergraduate and postgraduate students from diverse ethnic backgrounds and has shed light on the roles of cultural diversity within the context of personal informatics and mental wellbeing.

While digital mental health interventions are typically delivered in English, this research study supported participants in exploring the bullet journal toolkit using their language of choice. Considering that three participants decided to document their mood and related lived experiences using a non-English language, highlights the importance of fostering linguistic diversity as part of research studies and mental health university programmes. This is particularly crucial in the case of self-reporting mood, feelings, and emotions. As language is personally meaningful and socially constructed, self-reporting and making sense of mental wellbeing experiences with limited language capacity can potentially lead to misalignment between felt experiences and reported experiences. Supporting participants in documenting and reflecting on their mental wellbeing experiences in their language of choice can support the enactment of agency and expression of identity and culture.

In line with related work on the evolutionary history of regulating arousal through colour perception [31], participants have drawn attention to their upbringing and social values when selecting colours for their pictorial mood visualisations. The finding that colour selection preferences and colour selection strategies were not static, but inherently dynamic (i.e., reflective, experimental, and evolving), suggests caution regarding colour-based stereotypes and

encourages the implementation of more customisable self-tracking systems [7, 30].

This research involved participants from diverse cultural backgrounds and documents rich journaling practices: participants have characterised and contrasted East-Asian and Western journaling practices. While the former seems to focus on artistically documenting memorable social experiences, the latter tends to centre around improving self-care through self-reflection. Participants have highlighted the importance of providing culturally appropriate journaling tools as part of paper-based diary studies, such as fountain pens to support Chinese writing systems. A promising research direction could involve a systematic analysis of journaling cultures across the globe to foster more open innovation and engagement.

Research on mental wellbeing suggests that culture can significantly influence the experience of stressors and choice of coping strategies [35]. While mental wellbeing and mental illness management was primarily dominated by biomedical reasoning, recent work has documented the increasing importance of adopting socio-cultural approaches to understanding people’s emotional expressions and worldviews to inform culturally sensitive mental health practice [39]. For example, Ware et al. [97]’s anthropologically-informed case studies of neurasthenia in China and chronic fatigue syndrome in the US, illustrate how firmly people’s perceived health experiences are intertwined with their social lives and local context. In this vein, a feminist analysis of mental health self-care apps points to “overly simplistic, individualistic and potentially harmful” mental health narratives that present mental health self-management as an individual self-discovery and self-improvement process, overlooking people’s diverse needs and sociocultural backgrounds [82]. Tachtler et al.’s socio-ecologically-informed series of co-design workshops highlights the interrelations between bio-systems (i.e., individual factors, such as age, personality, health), micro-systems (i.e., living environments, peers, physically distant family members, and close social ties), and macro-systems (i.e., settlement regulations and policies) that need to be considered for informing the design of inclusive mental health technologies.

This exploratory research study has involved university students from diverse cultural backgrounds and has documented their agency and creativity in documenting their holistic mental wellbeing with the help of a tangible journaling toolkit. Participants expressed their lived experiences using personally meaningful colours and language, documented personal and social wellbeing challenges, and highlighted diverse journaling cultures. These findings draw attention to equality, diversity, and inclusion in mental health research and motivate critical inquiries into dominant approaches to providing psychotherapies [20, 33] and developing mental health technologies [85, 90].

6.2 Leveraging Creative Approaches to Mental Wellbeing

Digital technologies provide significant potential to transform mental health interventions and services. Approaches to supporting student mental wellbeing have focused on self-tracking and behaviour change and applied methods, such as digital phenotyping [58, 76] and context-aware sensing [60, 94]. Students tend to take

rather passive roles in the production of their health and wellbeing data for the purpose of mental illness assessment as part of technology-centric research. While digital technologies can support student mental wellbeing, the engagement with digital applications can potentially cause unintended effects and amplify ill mental health [46, 49, 50]. Based on this understanding, digital wellbeing initiatives and digital detox trends have informed constructive approaches to fostering self-control and mindful engagement with digital technologies [15, 61, 62].

This research has investigated student mental wellbeing needs through the lens of self-tracking. Prior work has highlighted that medically-informed [2, 59] and achievement-based [24, 32] self-tracking approaches are typically driven by normative health metrics, including steps, calories, and predefined symptom indicators [66, 81]. While dominant self-tracking approaches are adopted by a critical mass, they can also impede people's health and wellbeing needs [16, 18, 26, 72]. In practice, the use and experience of self-tracking experiences have been characterised as meaningless [17], burdened [22], oppressive [69], forced [56], exclusionary [26], and even inappropriate [37].

Drawing on the limitations of existing self-tracking approaches, recent work has investigated alternative self-tracking systems, including bullet journaling. In particular, human-centred research studies applied online ethnographies and interview studies and identified the limitations of existing bullet journaling practices [1, 9, 88]. While bullet journaling systems can be used to support productivity and wellbeing, there are well-documented barriers, managing misalignment between artistically staged online presentations of bullet journal artifacts and the actual effort in creating journal entries and the gained emotional value of engaging in bullet journaling in everyday life [ibid]. Contributing to this line of work, we have presented the design and evaluation of a tangible journaling toolkit comprising a set of laser-cut stencils and a how-to guide. The bullet journal toolkit aimed to provide scaffolding in exploring bullet journal methods with a particular focus on crafting personally meaningful mood visualisations. This approach empowered participants in taking proactive roles in collecting and visualising their own wellbeing data in daily life. Participants' accounts illustrate creative approaches to copying, adapting, and remixing the examples provided in the how-to guide and developing custom visualisations that go clearly beyond the provided guidance in the how-to guide. A promising research direction would be to explore how tangible support tools could be developed further by drawing on material science [4, 74]. While this work has focused on rigid laser-cut stencils, morphing materials and shape-changing interfaces could be used to experiment how, for example, stretchable structures and foldable shape changing mechanism could be used to design more modular and flexible journaling toolkits to meet the needs of people with diverse creative and agentic capacities. These tangible and flexible support tools could then be leveraged to support craft-based practices and creative health approaches [73], such as art therapy, to support people's mental wellbeing in daily life.

While the journaling toolkit can be described as a digital technology agnostic approach, our findings show that participants bridged analogue and digital realms in complementary ways. Participants

did not work with their bullet journal toolkits in silos but intertwined the use of pencil and paper with digital tools in creative ways. When participants creatively visualised digital personal data generated by health and finance apps, the bullet journal toolkit became a part of a larger semi-automated ecosystem and when participants appreciated taking breaks from using digital productivity applications and instead valued engaging in self-tracking through mindful colouring the bullet journal toolkit took the role of a digital wellbeing supportive system. Future research could explore how tangible tools and digital user interfaces could be used in tandem by, for example, supporting journaling practices, such as searching, analysing, sharing, and archiving photos of paper-based journal entries. In doing so, tangible and digital tools could form hybrid platforms to support communities of practice in increasing participation in the production of custom journaling toolkits at wider scale. An important consideration would be how sustainability can be achieved when fostering the fabrication and production of custom journaling toolkits in community settings [63, 75].

Overall, our findings highlight the importance of acknowledging the value of paper-based journaling approaches as research tools in understanding lived experiences and as interventions tools in supporting creativity and wellbeing. While prior work has documented how a digital customisable and pictorial self-tracking approach can support experiences of agency [7], this research shows how a paper-based customisable and pictorial self-tracking approach can support similar experiences. Instead of asking whether digital or analogue self-tracking approaches are more effective, we highlight that analogue and digital tools can work in tandem. We focus attention on the felt experiences of crafting, colouring in, reflecting on personally meaningful visualisations and on the promising design space of creating tangible support tools that provide unique tactile experiences [10, 52, 89, 92]. Ultimately, our work strengthens shifts towards more creative mental health approaches that empower people to freely exercise their agency in exploring and expressing their felt experiences and mental wellbeing in daily life [48, 73, 95].

7 Limitations

We have iteratively designed a tangible journaling toolkit and evaluated a usable version of the toolkit over the course of two weeks with university students from diverse cultural backgrounds. While the results identify perceived benefits and challenges of using the bullet journal toolkit, future mixed-methods research needs to be conducted to understand to what extent the toolkit can support creative and mindful engagement. In particular, it would be of importance to recruit a more gender-balanced and culturally diverse participant group. We acknowledge the focus on mental wellbeing and the lack of mental health specific measures as limitations. Future work could involve participants with a mental illness diagnosis, use mental health questionnaires, and investigate how tangible journaling approaches with a focus on artistic and creative expression could be integrated into existing mental health services and clinical pathways.

8 Conclusion

Traditional paper-based journaling continues to be widely used and holds substantial promise in supporting mental health and wellbeing. However, the flexibility and visual appeal of analogue methods can result in feelings of intimidation, frustration, and ultimately abandonment. We have explored this problem space by presenting the design and evaluation of a tangible toolkit comprising a set of laser-cut stencils and an example-based how-to guide to scaffold self-tracking mood through mindful colouring. We have presented the findings of a two-week diary study with university students from diverse backgrounds illustrating the creative appropriation and personally meaningful expression of mood and lived experience. Participants copied examples provided in the how-to guide and developed their own custom visualisations using realistic and abstract styles, defined mood and related lived experiences using personally meaningful descriptions and emojis, utilised distinct colour selection and colouring in strategies, and applied different annotation and bricolage techniques. In doing so, participants reported enjoying the experience of colouring and gaining awareness of their mood, feelings, and emotions in daily life. Ultimately, we have shown the potential of designing tangible support tools to facilitate artistic journaling practices and motivated shifts towards mental wellbeing approaches that support people in exploring and expressing their felt experiences in creative ways.

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