

# Practitioners' Insights on Integrating Goal Setting Tools in Personal Informatics

Sruzan Lolla  
Lancaster University, UK  
s.lolla@lancaster.ac.uk

Corina Sas  
Lancaster University, UK  
c.sas@lancaster.ac.uk

**While the tools and methods of qualitative goal setting are available, their application in goal support technologies such as personal informatics has been less explored. In this study, we set out to discern the applicability of four goal setting tools, namely, goal appraisal workbook kit, decision matrix, goal breakdown, and SMART goals. To this aim, we report twelve participatory workshops with goal practitioners including therapists, counsellors, and coaches. Relying on practitioners' feedback and prior literature on these tools, we assess their applicability and present the identified opportunities in designing interfaces for supporting goal setting for qualitative goals.**

*Goals, Goal setting, Personal informatics, Behaviour change, Goal-oriented work, Goal support tools*

## 1. INTRODUCTION

Personal informatics technologies offer extensive support to tracking several quantifiable aspects of one's life (Epstein et al., 2020), from daily step counts and sleep quality to yearly financial savings. While technologies support goal setting for these quantified metrics (e.g., walking 10,000 steps per day), HCI scholars have also identified the value of abstract and more meaningful goals for personal informatics users. For instance, Niess and Woźniak defined *quantitative goals* as those directly trackable, which often consist of numbers and differentiated them from *qualitative goals*, which are not directly trackable but can be verbalised (e.g., leading an active lifestyle) (Niess and Woźniak, 2018). Such qualitative goals can act as sources of motivation and meaning for the quantitative goals, being suggested as valuable for the effective pursuit of quantitative goals. However, supporting the setting of qualitative goals is underexplored in personal informatics (Zhu et al., 2025).

In their review of HCI studies of goal setting, Ekhtiar et al. (Ekhtiar et al., 2023) found that only one-third of their reviewed studies included setting qualitative goals. Moreover, these goals were limited to single trackable domains such as physical activity or nutrition. They argued for extending the support of qualitative goals to multiple concurrent goals. Recently, Zhu et al. (Zhu et al., 2025) have also noted the predominant HCI focus of goal support on single domains and argued for the importance of supporting qualitative goals from multiple domains. Zhu et al. also critiqued the predominant focus on quantitative goals, showing that among the most

effective technology-based interventions are also those that focus on users' qualitative goals.

Common theoretical frameworks used for designing personal informatics, such as the Transtheoretical Model (Prochaska and Velicer, 1997), focus on single-goal behaviour change, offering limited support for setting and managing multiple goals simultaneously. Informed by health research, goal-oriented work (Tonnesen et al., 2022) is a promising approach to address this limitation as it involves health staff facilitating people's reflection on their multiple significant goals (Cooper and Law, 2018).

In their systematic review of HCI work on goals for behaviour change technologies, Zhu et al. (Zhu et al., 2025) indicated the emerging use of goal-oriented work approach in HCI research (Brotman et al., 2015; Chaudhry et al., 2022), albeit with limited focus on the tools supporting such work, and usually in paper and pencil format. However, we know little about such tools, their applicability in goal support, how they may be integrated in personal informatics technologies, and how they may be used without the explicit facilitation of a health expert.

To address this gap, we report workshops with 12 goal-oriented work practitioners to explore the value of digitising four commonly used qualitative goal setting tools to inform novel design of mobile apps. We also discuss the tools' theoretical basis and validity, which are critical for grounding design decisions for effective goal support (Hekler et al., 2013). Drawing from practitioner feedback and tool validity, we argue for the selective integration of these tools into personal informatics technologies.

## 2. RELATED WORK

### 2.1 Qualitative Goal Setting In HCI

Qualitative goals have been studied and supported primarily in the domains of physical activity (Alqahtani et al., 2020), nutrition (Epstein et al., 2016), mental health (Zhang et al., 2021), and also broadly in health and overall wellness (Zhao et al., 2021). While earlier studies explored qualitative goals behind people's tracker goals (Tholander et al., 2015), recent works provided active support in setting qualitative goals. For instance, a mobile app assigned daily challenges on diet, such as *'eat something that is good for your eyes'* and captured the challenge completion of its users (Epstein et al., 2016). Similarly, another mobile app suggested a checklist of daily activities to users, such as *'I groomed myself'* (Zhang et al., 2021). These tasks were grouped by difficulty level, and completion was captured using gamified features such as the activity streak of the highest difficulty level.

While this support is at the level of low-level or short-term goals, novel works have also explored support for high-level and more abstract goals. This focus is beginning to emerge under the umbrella of goal-oriented work, which we briefly review next.

### 2.2 Goal-Oriented Work and Tools

Drawing from health research, the goal-oriented work involves a range of activities for supporting patients' goals through identifying, setting and tracking both quantitative as well as qualitative goals (Tonnesen et al., 2022). While goal-oriented work has been less explored in HCI, a recent systematic review shows that technology-based interventions leveraging goal-oriented work are among the most effective interventions (Zhu et al., 2025).

For instance, a web application provided a set of reflective questions about improving physical activity, prior to the setting of quantitative goals (Lee et al., 2015). In another instance, implementing goal-oriented care for adults with chronic conditions, a tablet app employed motivational interviewing approaches for eliciting goals, created goal-based care plans, set SMART goals, and tracked them (Chaudhry et al., 2022). Besides these, Personal Project Analysis (PPA) workbooks (Little 2017) were used in participatory design as a goal appraisal activity of listing and ranking personal goals (Brotman et al., 2015). In another study implementing goal-oriented work for hospitalised children, goals were conceptualised as belonging to three hierarchical levels – high, mid, and low-level goals (Zhao et al., 2021). While Zhao et al. did not actively support the breakdown of high-level goals, goal breakdown has been explored visually in works outside of HCI to represent a person's goal structure (Alsawy and Mansell, 2013).

In this paper, we focus on three such tools: the PPA workbook (Little and Gee 2017), the hierarchical goal breakdown (Alsawy and Mansell, 2013), and SMART goals (Doran 1981). We chose these tools as they are not limited to a specific life area and can be completed without the active involvement of an expert. In addition, we also included the decision matrix, a commonly used time management tool, which is valued for prioritising important goals among competing goals (Mfondoum et al., 2019).

All these four tools support working with qualitative goals. Among them, the PPA workbook supports listing and appraising goals, and the decision matrix supports prioritising goals. The other tools, goal breakdown and SMART goals, support converting qualitative goals into quantifiable or actionable ones. While SMART goals have been explored in personal informatics (Chaudhry et al., 2022), the other tools are yet to be integrated into these technologies.

## 3. METHOD

To explore how to integrate these four goal setting tools in personal informatics, we conducted individual workshops with 12 practitioners with expertise in goal-oriented work. Practitioners were rewarded with £20 vouchers for their participation, and the study received institutional ethics approval.

### 3.1 Participants

We recruited twelve practitioners (9 female, 3 male, 0 other) from online directories, with average age 48 (range 26-70) including psychotherapists (4), counsellors (6), and coaches (2). Participants had an average of 11.7 years of experience (range 3-30). Workshops lasted around 30 minutes, were audio-recorded, and fully transcribed.

### 3.2 Workshop Procedure and Analysis

The workshops consisted of three main parts: (i) an introduction where each tool was briefly introduced with a succinct description and visualisation (see Appendix A), (ii) main part in which we gathered practitioners' feedback on these tools namely perceived strengths, challenges, and suggestions to mitigate challenges and (iii) discussion on how such tools can be digitised in the form of a mobile app.

The analysis of workshops' transcripts was performed by the first author, predominantly employing inductive coding of conventional content analysis (Hsieh et al., 2005). Through ongoing conversations with the second author, over 150 codes were generated on the tools, capturing their strengths such as utility and relevance, their limitations such as cognitive burden, and suggestions for addressing them.

## 4. FINDINGS

We now present the findings from the workshops. A tabular overview can be found in Appendix A.

### 4.1 PPA Workbook Kit

PPA workbook kit begins with listing and selecting up to 10 goals that are most relevant to the person, followed by an appraisal of goal aspects such as goal importance, difficulty, progress, and perceived emotions while engaging in a goal. All these aspects are quantitatively appraised by scoring them against each of the 10 goals on an 11-item Likert scale.

Although practitioners (7 out of 12) found all the criteria useful *"you could realistically use all those criteria, there's something from each of them"* [P4], others (5/12) mentioned that rating goals on several criteria will be burdensome or unnecessary for users in moving with their goals, *"I don't see the benefit of doing that because all they are interested in is - This is my goal. How can I get there?"* [P2]. Practitioners suggested using fewer criteria, such as criteria that appraise motivation for taking up a goal: *"I would connect it with their personal drive forward"* [P1], *"help bring that sense of purpose or movement"* [P4]. Practitioners highlighted the relevance of particular criteria, such as goal importance for prioritising goals *"goals rated 10/10, they'll know where to focus"* [P7]. Others added to this the likelihood of success towards goals: *"if you can't have the outcome, there is no point doing goals"* [P2]. Practitioners also emphasised that questions are to be presented in simpler language.

### 4.2 Decision Matrix

The Eisenhower decision matrix is a time management technique that plots importance and urgency orthogonally, categorising goals into four quadrants of priorities (Mfondoum et al., 2019).

All goal practitioners deemed the usage of the decision matrix for usefulness and a straightforward visual, *"format is obvious"* [P2], *"great visual"* [P10]. The utility of goal prioritisation was highlighted: *"they only really gonna do stuff that's really important, and obviously if time is kind of constraint, you're going to be like, oh, God, I need to do it now"* [P9]. One practitioner suggested allowing the ratings to be made adjustable during the journey of making progress towards goals: *"it should be a work in progress and also as the clients get more insightful and they're reflecting more, their attitude will change towards their goals"* [P2].

Regarding any other visuals for prioritising goals, one practitioner suggested using a custom-made Maslow's hierarchy of needs, *"a version of Maslow's hierarchy where you (user) make your own pyramid of importance"* [P10]. Other practitioners denied any other visual representations of combinations of

criteria, *"no need for any other visuals"* [P8], for which others provided rationale: *"I don't think you can judge any other combination because it's personal."* [P1].

### 4.3 Goal Breakdown

Hierarchical breakdown is a writing-based and visual exercise that consists of the breakdown of a high-level goal into multiple mid-level goals. Each mid-level goal then gets further broken down into low-level goals (Alsawy and Mansell, 2013).

All practitioners found the hierarchical breakdown clear and appealing, *"easier to read"* [P5], *"pyramid look can help you see how things cascade"* [P8]. Practitioners found this resembling their client discussions on exploring possible multiple means: *"If you focus on one thing and that one thing doesn't work, then I(client) go well, what's the point in doing it? But if I have a number of things that I can work on, by the time I've got through them all I may have found one that will work for me today or now."* [P12]. This stresses the importance of having multiple subgoals over a single subgoal. However, four experts mentioned that finding subgoals may not be trivial for users on their own *"they got so much stuff in the heads"* [P3] and suggested allowing the user to modify the subgoals at a later stage.

### 4.4 SMART Goals

SMART goals is a tool for framing goals to make them *specific, measurable, attainable, realistic, and time-bound* goals (Swann et al., 2023; Doran 1981).

Experts mentioned that smart goals assist in motivation, *"helps you get going"* [P2], *"commit to taking action"* [P6]. Reflecting on the use of this tool in their practice, one expert emphasised the need to capture measures and temporal aspects to make a goal trackable even when a goal might seem complete: *"So you reckon you're gonna go for a walk? OK, great. So how long will that be?, And then how many times you gonna do that this week. And so, then it becomes something that is measurable."* [P12].

Experts also do not consider this method to be standalone, *"what goes into it is where our craft lies"* [P7], and that it may not work at all during relapse: *"So even if you have SMART goals, there's no way you can achieve it if you keep relapsing with your behaviour"* [P11]. Furthermore, they suggested considering additional criteria for goal setting such as measurable milestones, tangible rewards, or needed resources.

## 5. DISCUSSION

We now discuss each tool, considering practitioner feedback, the tools' theoretical underpinnings, and

established validity in the literature, and make recommendations regarding their integration in personal informatics. We also present a few open questions for future research. We recommend the inclusion of the PPA workbook kit, an assessment based on personal goal research (Little 2017), for its usefulness, albeit with a consideration for user acceptance. Specific criteria, such as *'goal importance'*, which our experts mentioned as critical, can be leveraged for prioritising goals, thereby linking to the goal support process.

While experts found the decision matrix valuable for its simplicity, the tool can be perceived as lacking theoretical underpinning, given its origins rooted in personal use and application mainly in specific life domains such as work-related contexts (Mfondoum et al., 2019). We could not find literature on validity for this tool. Thus, we suggest that future work could explore other potential visualisations of multiple goals which also benefit from theoretical underpinning, such as Maslow's hierarchy of needs (Gambrel et al., 2003).

Our experts highlighted the importance of having multiple means or subgoals for a given goal, which is also extensively present in goal research (Kruglanski et al., 2018). We, therefore, recommend integrating goal breakdown activities.

Although SMART goals tool is often associated with Locke and Latham's goal-setting theory, it has limited theoretical underpinning (Swann et al., 2023), as, Locke and Latham only acknowledged the utility of the method as a heuristic for practitioners (Locke and Latham, 2015). Furthermore, this tool was shown to be detrimental to participants in their early stages of learning, when compared to openly framed goals (Hawkins et al., 2020). However, the tool is empirically validated in specific contexts, such as rehabilitation (Bovend'Eerd et al., 2009). We therefore recommend converting qualitative goals into quantitative goals using SMART goals, albeit only in familiar goal areas of a user. Apart from the limitation of not capturing any other goal details as mentioned by practitioners, other notable issues identified with the technique include several expanded versions of the acronym, and forceful inclusion of all five criteria (Swann et al., 2023). We therefore recommend allowing users to skip any inapplicable criteria, promoting a more flexible approach.

Lastly, our work also opens avenues for more research on supporting qualitative goals to answer the question of what other tools can be leveraged for goal support. Given the necessity of developing scalable and accessible interventions for wellbeing, with minimal involvement from therapists or clinicians (Pendse et al., 2019), how can other novel goal support tools be integrated into goal support systems? For this, we can reflect on the potential value of other tools, such as those that can support

users not only in setting their goals but also in identifying them.

## 6. DESIGN IMPLICATIONS

We present two implications in response to challenges identified by practitioners: selective goal appraisal in addressing the cognitive burden of the PPA kit, and scaffolding to support self-driven goal breakdown, which practitioners noted as a difficult task for individuals to accomplish on their own.

### 6.1 Selective Appraisal of Goal Criteria

Goal appraisal kits (such as Little 2017, Emmons 2003), consisting of several criteria, are designed to be filled in a single session. As this can overwhelm users, instead, only a small set of criteria, which meaningfully inform the next phases of goal support, can be chosen, and visualisations for working with them can be supported. For example, *'need level'* can be appraised for building a need hierarchy pyramid. This information can then be used in a later session to appraise importance scores for goal prioritization. Similarly, types of reasons for pursuing a goal (Emmons 2003), such as intrinsic and extrinsic reasons, can be collectively appraised and visualized for user's reflection.

### 6.2 Scaffolding Goal Breakdown

Assisting with the breakdown of a complex or highly abstract qualitative goal is another potential opportunity to integrate in personal informatics. For appraising such goal connections, detailed hierarchical breakdowns such as goal systems can also be explored (Kruglanski et al., 2018). To identify a reliable list of applicable life areas for a user based on their age group, prior work on the taxonomy of goal domains can be leveraged (Chulef et al., 2001). Further, identification of subgoals can be scaffolded from common subgoals explored in previous works (e.g., Epstein et al., 2016, for nutrition). Besides the top-down goal breakdowns, bottom-up timeline-based approaches from short-term to long-term goals can also be explored, connecting goals across domains (Wadsworth and Ford, 1983).

## 7. CONCLUSION

Through our workshop study, we reviewed the applicability of four tools for goal setting that were informed mostly from goal-oriented work, and which were limitedly explored in HCI research on personal goals. We recommended selective integration of these tools, offered suggestions for mobile interfaces, and provided two novel design implications for future works, including selective appraisal of goal criteria and assistance in goal breakdown.

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## APPENDIX A

**Table 1:** Goal setting work tools explored in HCI (and their theoretical basis, if any), pre-requisites for using the tool, outcomes after using the tool towards goal support, themes of strengths and challenges of the tools (with frequencies). Tools tagged with an asterisk (\*) are traditionally performed in the presence of a therapist.

| Tool or Method                        | Pre-requisite  | Goal Support – Outcomes   | Strengths                            | Challenges   |
|---------------------------------------|--|---|--------------------------------------|--|
| <i>PPA Workbook Kit (Little 2017)</i> | <i>A list of all personal goals of an individual</i> | <i>Goal importance, difficulty, control, time adequacy, outcome, self-identity, resources, progress, emotions, impact between goals</i> | <i>Useful criteria (7)</i>           | <i>Cognitive burden (3), unnecessary criteria (2)</i>                  |
| <i>Decision Matrix</i>                | <i>Vaguely framed goals</i>                          | <i>Prioritised goals clustered by importance and urgency</i>  | <i>Clear visual (4), useful (3)</i>  | -  |
| <i>Goal Breakdown*</i>                | <i>High-level goal</i>                               | <i>Subgoals</i>   | <i>Appealing visual exercise (4)</i> | <i>Difficult to answer on own (2), changing subgoals (1)</i>           |
| <i>SMART Goals</i>                    | <i>Vaguely framed goals</i>                          | <i>Specific, measurable, attainable, realistic, and time-bound goals</i>  | <i>Supports motivation (3)</i>       | <i>Not a standalone tool (3), missing other necessary criteria (2)</i> |