

Preferred Levels of Agency: Development and validation of the Goal Abstraction Preference (GAP) scale

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Abstract

Goals are hierarchically organized, such that the same action can be represented at either a concrete or abstract level. While existing theories account for variability in goal abstraction, they primarily conceptualize this variability as situational or contingent on performance rather than as reflecting a stable, domain-general preference. We propose that Goal Abstraction Preference (GAP) is a trait-like dimension of human agency capturing systematic individual differences in the type of goals individuals preferentially pursue, ranging from concrete, action-proximal goals, to abstract, purpose-level goals. Across two studies (total N = 970), including a preregistered replication, we developed and validated an 18-item scale distinguishing Abstractness and Concreteness. Factor analyses supported a robust two-factor structure that generalized across ten life domains, with high internal consistency and discriminant validity relative to personality, action identification, and temporal orientation. External validity was established using an open-ended goal narrative task independently coded by a large language model. Participants' Abstractness predicted more abstract spontaneous personal narratives, whereas Concreteness predicted more concrete ones. GAP demonstrated incremental validity beyond established constructs, showed relative temporal stability, and was systematically associated with age and sociodemographic status. These findings position GAP as a reliable and behaviorally meaningful dimension of preferred agency. By identifying the types of goals individuals are inclined to pursue within hierarchical goal systems, the GAP framework offers a novel perspective on individual differences in goal regulation and suggests that matching interventions to individuals' preferred level of goal representation may help bridge the intention-action gap.

1 Introduction

Human agency is typically understood as the capacity to act intentionally in pursuit of goals. Individual differences in agency have largely been operationalized through constructs such as perceived control (Ajzen, 2002), self-efficacy (Bandura, 1977), or sense of agency (Tapal et al., 2017), which conceptualize agency primarily as the subjective experience of control over actions and outcomes. Although highly influential, these approaches largely treat agency as a unidimensional construct that varies in magnitude: individuals differ in how much agency they perceive themselves to possess. This state-oriented perspective emphasizes variations in perceived agency as a function of performance or situational constraints. However, theoretical developments suggest that agency is better understood as a

multidimensional construct comprising distinct types and subtypes (Pacherie, 2008). From this perspective, individuals may differ not only in the amount of agency they experience, but also in the specific type of agency they preferentially seek to exercise.

Characterizing agency as a trait-like preference, rather than merely a state-dependent experience, requires acknowledging the hierarchical organization of goal-directed behavior. Actions are embedded within goal systems spanning multiple levels of abstraction, such that a single behavior can serve both proximal and distal aims (Köpetz et al., 2011; Kruglanski et al., 2015). Concrete goals specify outcomes closely tied to action execution (e.g., “grasping a glass” or “turning on the tap”), whereas abstract goals refer to broader purposes that can be achieved through multiple actions or strategies (e.g., “quenching one’s thirst”; Carver & Scheier, 1982; Gozli & Dolcini, 2018; Pacherie, 2008). The same physical action can therefore be represented at different hierarchical levels without any change in its motor implementation. For example, “turning a key” may serve the concrete goal of “locking a door,” a more abstract goal of “securing one’s home,” or an even more abstract goal of “protecting one’s family” (Vallacher & Wegner, 1989). Likewise, “taking a pill” can be understood as “treating a headache,” “ensuring a productive day,” or “maintaining long-term health”. What varies across these representations is not the action itself, but the level of abstraction at which the goal is represented (see **Figure 1**).

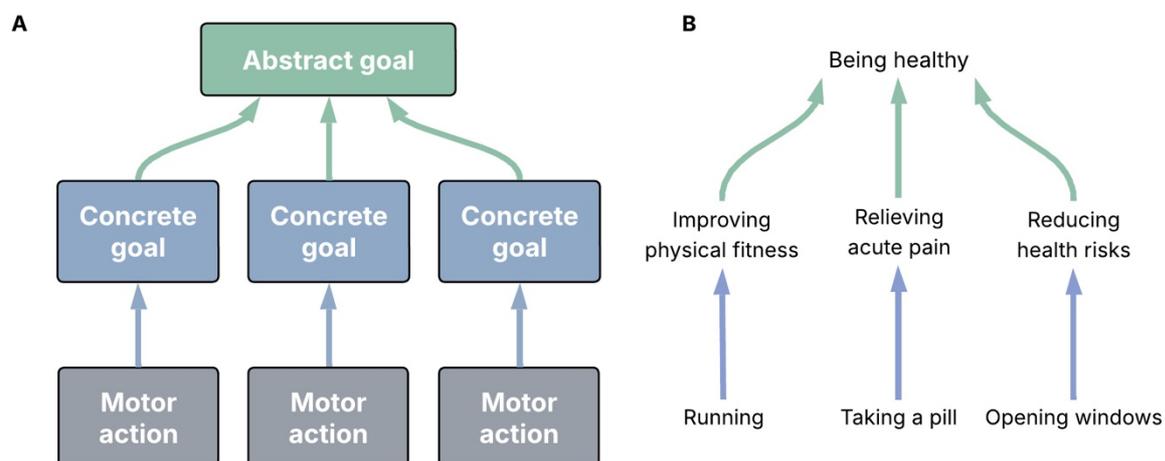


Figure 1. Hierarchical model of goal-oriented action with illustrative examples. Motor actions specify highly constrained, action-proximal means. Concrete goals admit a limited set of alternative actions. Abstract goals, by contrast, are defined at a higher level of the hierarchy and can be realized through many qualitatively different concrete goals and motor actions (“equipfinality”; Köpetz et al., 2011; Kruglanski et al., 2015). Accordingly, the higher a goal is located in the hierarchy, the broader the range of means through which it can be achieved.

Prior theories have provided influential accounts of when and why individuals shift between concrete and abstract goal representations (Freitas et al., 2001). Construal Level Theory explains variation in abstraction as a function of psychological distance, proposing that distant events are construed in abstract terms prioritizing desirability, whereas proximal events are construed in concrete terms prioritizing feasibility (Trope & Liberman, 2010). For instance, Kim et al. (2009) showed that abstract versus concrete message framing differentially influences persuasion depending on the temporal proximity of the decision. Similarly, Action Identification Theory distinguishes higher-level (“why”) from lower-level (“how”) representations of action, suggesting that individuals default to the highest level they can effectively sustain but shift toward concrete descriptions when action becomes difficult (Vallacher & Wegner, 1989). Both frameworks therefore draw a principled distinction between purpose

and implementation: abstract representations specify the broader meaning of an action, whereas concrete representations capture how it is carried out.

Within Action Identification Theory, this distinction is operationalized through the Behavioral Identification Form (BIF), which asks participants to choose between purposive or procedural descriptions of the same action (Vallacher & Wegner, 1989). Although the BIF is a well-validated instrument, it has several limitations. First, it relies on forced “how-why” choices, assessing identification among predefined binary alternatives rather than capturing continuous preferences. Second, the “why” option is treated as unitary, without internal variation in its level of abstraction, thereby obscuring potentially meaningful differences between preferences for relatively concrete purposes (e.g., instrumental goals) and highly abstract ones (e.g., overarching values; Höchli et al., 2018). Third, BIF responses are sensitive to situational factors such as task difficulty, fluency, or expertise, making the measure poorly suited to capturing stable preferences in how individuals regulate action across domains and contexts (e.g., Wang et al., 2019).

Other work on individual differences in agency has focused on beliefs about control and competence, including locus of control and self-efficacy (Galvin et al., 2018). These constructs assess whether individuals perceive outcomes as controllable and whether they feel capable of achieving their goals (Ajzen, 2002). However, none addresses the level of abstraction at which agency is preferentially exercised. An individual may feel highly efficacious in managing concrete daily tasks (e.g., following a specific diet), while experiencing little agency with respect to broader, long-term orientations (e.g., maintaining good health), or vice versa. Apparent differences in perceived agency may therefore partly reflect alignment – or misalignment – between how a goal is framed and the individual’s preferred level of agency (see Van der Weiden et al., 2010).

Taken together, current theories explain situational shifts in abstraction and global beliefs about control, yet do not address whether individuals differ systematically in where they preferentially locate agency within hierarchical goal systems. In the present work, we propose that preferences for abstract versus concrete goals constitute a stable, domain-general dimension of human agency. These preferences do not reduce to differences in values, temporal orientation, or perceived competence. Rather, they reflect how individuals structure the relation between actions and purposes across domains: some regulate behavior primarily through concrete, action-proximal goals, whereas others orient toward more abstract, integrative aims that structure action at a distance from immediate execution. In what follows, we introduce and validate a new scale designed to capture these individual differences in preferred levels of agency.

2 General method

2.1 Transparency and openness

We follow Journal Article Reporting Standards (JARS; Appelbaum et al., 2018). Neither study involved experimental manipulations. All participants provided informed consent prior to participation. The study protocol was approved by the local ethics committee (CER, PSE). Sample size for Study 1 was determined using recommended participant-to-item ratio heuristics for factor analysis (Boateng et al., 2018; Guadagnoli & Velicer, 1988). Sample size for Study 2 was specified in the preregistration. All data exclusion criteria and thresholds are reported in Sections 2.5 and 4.3. All data, analysis code, and research materials are publicly available at <https://osf.io/8q4w2/>. Data were analyzed using R, version

(R version 4.5.1, R Core Team, 2025), with the following primary packages: lavaan (confirmatory factor analysis and structural equation modeling), psych (exploratory factor analysis), lme4 and lmerTest (mixed-effects models), and mirt (item response theory). Narrative annotations were generated using GPT-5.1 (OpenAI), following the zero-shot scoring procedure described in Section 2.5.5. Study 1's design and analyses were not preregistered. Study 2's design, hypotheses, and analysis plan were preregistered prior to data collection; see <https://osf.io/8q4w2/>.

2.2 The present study

Goal abstraction preference refers to a stable difference in the kinds of goals people are inclined to pursue, ranging from concrete to abstract. Existing measures typically assess situational construal or momentary action identification and therefore do not capture a general, trait-like preference for representing goals at a particular level of abstraction. To address this gap, we developed the Goal Abstraction Preference (GAP) scale as a measure of individuals' preferred level of goal representation.

2.3 Participants

Participants were recruited via Prolific Academic to complete an online survey and received £4.50 for a study lasting approximately 30 minutes. The initial sample comprised 377 individuals. After applying the data-quality exclusion criteria described below, the final analytic sample consisted of 265 participants, a size adequate for both exploratory and confirmatory factor analyses of 22 items (Boateng et al., 2018; Guadagnoli & Velicer, 1988). In the final sample, participants ranged in age from 20 to 77 years ($M = 42.83$, $SD = 12.78$). Gender was reported as female by 125 participants (47.2%), male by 135 participants (50.9%), non-binary by 4 participants (1.5%), and not disclosed by 1 participant (0.4%).

2.4 Procedure

The study was administered online using Qualtrics. After providing informed consent, participants completed a series of questionnaires assessing goal abstraction preferences and related individual-difference constructs, along with basic demographic information. Data quality was monitored using embedded instructed-response items, and participants also provided self-reports of attentiveness and response reliability at the end of the survey.

2.5 Data quality screening and exclusions

Data quality screening excluded participants for non-completion, suspected automated responding, platform authenticity flags, attention check failures, or low self-reported attentiveness or reliability. Non-completers were removed ($n = 41$). Qualtrics reCAPTCHA v3 was used to screen for automated traffic; participants scoring below the predefined threshold of 0.8 were excluded ($n = 31$). Participants flagged by Prolific as potentially inauthentic were also excluded ($n = 33$). Participants who failed at least one of three embedded instructed-response items ("select this response") were excluded ($n = 7$). Finally, participants reporting less than high attentiveness (Very or Fully attentive) or reliability (Very or Completely reliable) on 5-point scales were excluded ($n = 5$). The final analytic sample comprised 265 participants.

2.6 Measures

2.6.1 Domain-general goal abstraction items

The GAP items were developed in accordance with standard principles of scale construction. Item content was grounded in hierarchical models of goal representation and action identification, with the aim of capturing contrasts between abstract and concrete goal representations while avoiding domain-specific content. Abstract items emphasized higher-level purposes, overarching aims, and distal outcomes (e.g., “I naturally think about my goals in a broad, big-picture way”), whereas concrete-oriented items emphasized specific steps, procedures, and immediate actions (e.g., “I prefer working with goals that describe clear, specific objectives”). The final trait-level GAP scale consisted of 22 items rated on a 7-point agreement scale ranging from *Strongly disagree* to *Strongly agree* (**Table 1**).

2.6.2 Domain-specific goal abstraction items

In addition to the trait-level scale, domain-specific items were developed to examine whether Goal Abstraction Preference generalize across content domains (i.e., work, learning, health, relationships, household, community, environment, cooking, gardening, and travelling). For each domain, ten items were created to assess abstraction preferences, contrasting five abstract goals with five concrete goals (**Table 1**). These items mirrored the structure of the domain-general GAP items while remaining clearly anchored in the relevant domain context. These measures were used to assess both cross-domain consistency and domain-specific variability in goal abstraction preferences.

Table 1. Domain-general and domain-specific items of the Goal Abstraction Preference (GAP) scale, organized by abstraction level, with a balanced number of abstract and concrete items within each domain. For the domain-general section, items were framed as complete first-person statements. For the domain-specific sections, items were introduced by a contextual prompt specifying the life domain (e.g., “When traveling or visiting a new place, my goal is to...”), followed by alternative goal formulations reflecting abstract versus concrete representations. All items were randomized and then rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The abstract-concrete partition displayed in this table corresponds to the a priori classification established at the item-generation stage. (Note: Envir. refers to the Environment domain, and Comm. refers to the Community domain.)

	Abstract	Concrete
General	<p>My goals usually represent broad, overarching aims rather than specific actions.</p> <p>When I set a goal, I think first about the general direction it gives to my life.</p> <p>I tend to define my goals in terms of what they ultimately stand for.</p> <p>I think about my goals as long-term orientations rather than concrete tasks.</p> <p>I prefer goals that capture a general purpose rather than a specific outcome.</p> <p>I usually link my goals to broader aspirations that matter to me.</p> <p>My goals tend to express the general direction I want my life to take.</p> <p>I naturally think about my goals in a broad, big-picture way.</p> <p>Before defining any specific objective, I reflect on the overall aim behind it.</p> <p>I often see individual goals as expressions of deeper values or ambitions.</p> <p>I think of goals mainly as guiding principles rather than concrete targets.</p>	<p>I usually define my goals in very specific, concrete terms.</p> <p>My goals tend to be about precise outcomes rather than broad purposes.</p> <p>When I set a goal, I focus mostly on the immediate actions I want to complete.</p> <p>I typically break down my goals into very concrete steps right from the start.</p> <p>For me, a goal needs to be specific and actionable to feel real.</p> <p>I find it easier to set goals when they are defined in very concrete terms.</p> <p>I usually focus on the tangible outcomes I want to reach, not on broad aspirations.</p> <p>A goal feels meaningful to me only when it refers to something specific I can achieve.</p> <p>I prefer working with goals that describe clear, specific objectives.</p> <p>I tend to define goals as specific achievements rather than overarching directions.</p> <p>My goals usually revolve around clearly defined tasks rather than broad purposes.</p>
	When [domain-related activity], my goal is to...	

Work	<ul style="list-style-type: none"> ...grow professionally and expand my impact. ...contribute to meaningful projects that serve broader purposes. ...shape the general direction of my career. ...develop as a professional rather than simply complete tasks. ...understand the purpose behind the work I do. 	<ul style="list-style-type: none"> ...complete a specific deliverable within a clear deadline. ...finish the next task on my to-do list. ...follow a detailed step-by-step plan for each workday. ...finalize one concrete output at a time. ...meet precise and measurable targets.
Learn	<ul style="list-style-type: none"> ...deepen my understanding of broad ideas. ...integrate knowledge into a wider intellectual framework. ...develop intellectual growth. ...understand the underlying principles. ...improve my general development. 	<ul style="list-style-type: none"> ...memorize specific facts or procedures. ...complete a concrete learning task, such as doing an exercise. ...follow a precise study routine with explicit steps. ...master one specific technique at a time. ...prepare myself for a specific assignment.
Health	<ul style="list-style-type: none"> ...maintain physical and mental wellbeing. ...cultivate a healthier lifestyle over time. ...understand how my daily habits support lasting vitality. ...orient my health toward overall quality of life. ...build resilience and balance. 	<ul style="list-style-type: none"> ...complete a specific session or routine. ...carry out a precise health action. ...reach one measurable target. ...follow exact instructions for a meal or workout. ...perform one concrete behavior that improves my health.
Relations	<ul style="list-style-type: none"> ...cultivate deep, lasting connections with others. ...build trust and mutual growth. ...nurture meaningful relationships over time. ...understand how each interaction contributes to our shared development. ...invest in the general trajectory of my relationships. 	<ul style="list-style-type: none"> ...plan a specific activity with someone. ...send a specific message or make a specific call. ...complete one concrete relational action at a time. ...follow through on a precise commitment. ...take one step to maintain a relationship.
House	<ul style="list-style-type: none"> ...create a living environment that supports global well-being. ...establish a sustainable atmosphere for daily life. ...maintain order and harmony at home. ...plan improvements that contribute to a better lifestyle. ...integrate daily chores into a meaningful life structure. 	<ul style="list-style-type: none"> ...complete a specific chore right now. ...tidy or clean one precise area. ...follow a clearly defined routine step by step. ...carry out tasks that produce concrete, visible outcomes. ...solve one specific household problem.
Comm.	<ul style="list-style-type: none"> ...contribute to deep social change. ...support causes that reflect broad values and aims. ...understand how my actions fit into larger societal processes. ...foster collective progress and well-being. ...align my involvement with social impact. 	<ul style="list-style-type: none"> ...complete a specific good action. ...participate in one clearly defined community activity. ...help with tasks that produce specific, tangible results. ...follow concrete instructions for how to contribute. ...take one small, practical step to help others.
Envir.	<ul style="list-style-type: none"> ...support environmental sustainability. ...protect ecosystems and future generations. ...understand how my choices fit into wider ecological systems. ...contribute to the preservation of nature. ...align my everyday behavior with broad environmental values. 	<ul style="list-style-type: none"> ...sort waste or recycling. ...reduce a specific amount of energy or waste. ...complete one precise eco-friendly action. ...follow exact environmental instructions. ...carry out a concrete behavior that benefits the environment.
Cooking	<ul style="list-style-type: none"> ...cook in a way that supports general health and enjoyment. ...develop a personal cooking style over time. ...understand broader principles behind good cooking. ...explore flavors and techniques that reflect my identity. ...improve my cooking skills in the long run. 	<ul style="list-style-type: none"> ...follow a recipe step by step. ...chop, measure, and cook specific ingredients. ...complete a single dish with precise instructions. ...achieve one exact, clearly defined culinary outcome. ...complete one concrete cooking task at a time.
Garden	<ul style="list-style-type: none"> ...cultivate a flourishing garden over time. ...create an ecosystem that grows and evolves. ...understand seasonal cycles and broader gardening principles. ...shape my garden according to a global vision. ...nurture plants as part of a larger life project. 	<ul style="list-style-type: none"> ...carry out one specific step that needs to be done. ...deal with one precise part of the garden or one plant at a time. ...focus on a clearly defined task. ...complete one concrete task with a clear and visible outcome. ...follow a specific, actionable instruction for the moment.
Travel	<ul style="list-style-type: none"> ...experience a place in a way that feels meaningful. ...understand a place in ways that go beyond sightseeing. ...use travel to broaden how I see the world. ...use travel to reflect on differences in ways of life. ...treat travel as an opportunity for personal exploration. 	<ul style="list-style-type: none"> ...reach a particular place I want to see. ...move from one location to the next. ...focus on what I am doing at this moment of the trip. ...accomplish one specific part of the journey. ...take care of the immediate next step of the trip.

2.6.3 Domain interest ratings

Participants also reported their level of interest in each of the ten domains for which they completed domain-specific GAP items. Domain interest was assessed using a single item per domain, rated on a 5-point scale ranging from *Not interested at all* to *Extremely interested*. These ratings were used to determine whether goal abstraction preferences predict domain-specific abstraction preference independently of general interest in the domain.

2.6.4 Single-item goal abstraction self-classification

A single-item measure of goal abstraction preference was included to examine whether individuals' preferred level of goal representation can be captured using a minimal assessment format. Participants were asked to classify their typical way of thinking about goals as either more abstract-oriented or more concrete-oriented. The inclusion of this item was motivated by applied considerations, particularly the potential use of goal abstraction preference in large-scale surveys and public policy contexts where questionnaire length is constrained. The instruction read as follows: "*Some people think about their goals in a big-picture way, focusing on the general purpose or the overall direction of what they want to achieve. Other people think about their goals in a very specific way, focusing on the exact steps or actions they want to take. Both ways are completely normal; they simply reflect two different ways of thinking about goals. What description fits you better?*" Participants were required to choose between the following options: "I think more in terms of the broader purpose of what I want to achieve" and "I think more in terms of the concrete steps I need to take".

2.6.5 Behavioral and task-based measure

Participants also completed an open-ended goal narrative task in which they were asked to describe a personally important goal and how they intended to pursue it. Responses were subsequently analyzed to quantify the degree of abstractness and concreteness expressed in the narratives using an independent annotation procedure. The instructions were as follows: "*Please think of a personal goal that matters to you—it can be something you're working on now or something you've pursued in the past. Describe, in your own words, how you have approached or would approach this goal. You should include what motivated you, how you decided what to do, whether it was a new goal for you, whether you tried different strategies or followed a specific plan, and anything else that feels relevant. Write freely and in as much detail as you like. There are no right or wrong answers. Your response should be between 300 and 1500 characters.*" This task served as a behavioral complement to the self-report GAP measures.

2.6.6 External validation measures

To evaluate the convergent, discriminant, and incremental validity of the GAP scale, participants completed a set of established individual-difference measures. Broad personality traits were assessed using a brief Big Five inventory (Soto & John, 2017). Perceived agency and control were measured using the General Self-Efficacy Scale (Schwarzer & Jerusalem, 2012) and a multidimensional locus of control questionnaire (Levenson, 1973) assessing internal control, powerful others control, and chance control. Action identification tendencies were assessed using the Behavior Identification Form (Vallacher & Wegner, 1989), which measures preference for high- versus low-level descriptions of action. Temporal orientation was assessed using the Future Orientation scale (Strathman et al., 1994), which measures the extent to which individuals focus on long-term versus short-term consequences (see **Table 2**).

2.6.7 Socio-demographic measures

Participants reported their age in years. Gender was assessed using four response options: man, woman, other gender, and prefer not to say. Perceived financial status was measured using six self-report items assessing participants' subjective evaluation of their economic situation (e.g., ability to meet expenses, perceived financial comfort, and financial security). Responses were aggregated to compute a composite index of perceived financial status, with higher scores indicating greater perceived financial resources.

Table 2. Overview of measures used in Study 1.

	Measure	What it measures	Why it was included
GAP	GAP (trait-level)	Individual differences in preferred level of goal representation (abstract vs. concrete)	To develop and validate a new trait-level measure of goal abstraction preference
	Domain-specific GAP items	Expression of goal abstraction preference within specific life domains (e.g., work, learning, health)	To assess cross-domain stability in goal abstraction preference
	Domain interest ratings	Self-reported interest in each of the ten life domains	To examine whether goal abstraction preferences predict domain-specific abstraction
	Single-item GAP	Explicit self-identification as generally more abstract-oriented versus more concrete-oriented	To evaluate a minimal measure suitable for large-scale surveys and applications
	Goal narrative task	Open-ended written description of a personally important goal	To provide a behavioral complement to self-report measures and enable external validation
Other	Big Five Personality traits	Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness	To assess convergent, discriminant, and incremental validity
	General Self-Efficacy scale	Generalized belief in one's ability to effectively handle challenges and achieve goals	
	Multidimensional Locus of Control	Perceived sources of control over life outcomes, (Internal control, Powerful others, and Chance)	
	Behavior Identification Form	Tendency to identify actions at higher versus lower levels of abstraction	
	Future Orientation scale	Degree to which individuals focus on long-term versus short-term consequences	

3 Results

3.1 Factor structure

3.1.1 Exploratory Factor Analysis (EFA)

The suitability of the GAP trait items for factor analysis was first assessed using standard measures of sampling adequacy and sphericity (Boateng et al., 2018). The Kaiser–Meyer–Olkin (KMO) measure indicated excellent overall sampling adequacy ($MSA = .92$), well above commonly recommended thresholds. Item-level KMO values ranged from .84 to .96, indicating that all items shared sufficient common variance to warrant inclusion in the factor analysis. Bartlett's test of sphericity was highly significant, $\chi^2(231) = 3292.57$, $p < .001$, rejecting the null hypothesis that the correlation matrix was an identity matrix. Together, these results confirmed that the data were appropriate for exploratory factor analysis (EFA).

The trait-level GAP scale initially comprised 22 items: 11 assessing preferences for abstract goal representations and 11 assessing preferences for concrete goal representations. On theoretical grounds, either a one-factor structure (reflecting a unidimensional concrete-abstract continuum) or two-factor structure (distinguishing abstract and concrete preferences) was expected. Parallel analysis indicated that up to three factors could be extracted (Lim & Jahng, 2019). Accordingly, EFAs specifying two- and three-factor solutions were estimated using maximum likelihood extraction with oblimin rotation. Model fit indices for these solutions are reported for comparison.

The two-factor solution showed moderate fit to the data ($RMSEA = .078$, $TLI = .876$) and yielded a clear, interpretable loading pattern. All abstract-oriented items (items 1–11) loaded primarily on one factor, and all concrete-oriented items (items 12–22) loaded on the second factor, with minimal cross-loadings. This solution closely matched the intended item structure and accounted for approximately 50% of the total variance. The correlation between the two factors was modest and negative ($r = -.17$),

suggesting that abstract and concrete goal preferences are related yet distinct dimensions rather than opposite poles of a single continuum.

The three-factor solution improved global fit (RMSEA = .058, TLI = .933) and yielded a lower Bayesian Information Criterion (BIC). However, inspection of the loading pattern showed that the additional factor merely split the abstract-oriented items into two clusters, a subdivision that lacked theoretical justification, while concrete-oriented items continued to load on a single factor. The third factor therefore appeared to capture item-level heterogeneity within the abstract items rather than a substantively distinct construct, limiting its interpretability despite superior statistical fit.

Given these considerations, the two-factor solution was retained as the exploratory reference structure. Item refinement proceeded iteratively, removing one item at a time based on weak primary loadings or substantial cross-loadings, while maintain balance across factors. Two items were removed due to cross-loadings and two due to comparatively weak or unstable loadings.

The final solution retained 18 items (9 abstract, 9 concrete, **Table 3**). The structure was clear and well differentiated, with strong primary loadings (abstract items: .57–.78; concrete items: .62–.84) and no problematic cross-loadings. The two factors accounted for 53.4% of the total variance (abstract: 32.1%; concrete: 21.2%). Model fit was acceptable (RMSEA = .081; TLI = .898). The latent correlation between factors was moderate and negative ($r = -.24$), consistent with partially independent but contrasting modes of goal representation.

Internal consistency was high for both subscales (McDonald's $\omega = .87$ for abstract goals; $\omega = .93$ for concrete). Correlations between observed mean scores closely mirrored the latent association ($r = -.27$), indicating that averaged scores provide a good approximation of the underlying factors. Overall, these findings support the GAP as a reliable, balanced, and structurally coherent two-dimensional measure of abstract and concrete goal preferences.

Table 3. Exploratory factor analysis of the Goal Abstraction Preference (GAP) trait items (two-factor solution).

Standardized pattern loadings are reported from an exploratory factor analysis using maximum likelihood extraction with oblimin rotation. Communalities (h^2) indicate the proportion of variance in each item explained by the two-factor model.

Goal Abstraction Preference (GAP) Item Content	ML1	ML2	h2
I naturally think about my goals in a broad, big-picture way.	0.06	0.78	0.59
I think about my goals as long-term orientations rather than concrete tasks.	-0.16	0.70	0.57
I usually link my goals to broader aspirations that matter to me.	0.10	0.69	0.45
I think of goals mainly as guiding principles rather than concrete targets.	-0.25	0.64	0.55
My goals tend to express the general direction I want my life to take.	0.20	0.63	0.38
When I set a goal, I think first about the general direction it gives to my life.	0.20	0.60	0.34
I prefer goals that capture a general purpose rather than a specific outcome.	-0.28	0.60	0.52
My goals usually represent broad, overarching aims rather than specific actions.	-0.30	0.61	0.55
I often see individual goals as expressions of deeper values or ambitions.	0.27	0.57	0.33
I find it easier to set goals when they are defined in very concrete terms.	0.83	-0.03	0.71
I usually define my goals in very specific, concrete terms.	0.83	0.00	0.69
I prefer working with goals that describe clear, specific objectives.	0.83	0.03	0.68
My goals tend to be about precise outcomes rather than broad purposes.	0.78	-0.08	0.64
For me, a goal needs to be specific and actionable to feel real.	0.78	0.03	0.59
I tend to define goals as specific achievements rather than overarching directions.	0.76	-0.01	0.59
I typically break down my goals into very concrete steps right from the start.	0.75	0.08	0.54
My goals usually revolve around clearly defined tasks rather than broad purposes.	0.74	-0.09	0.59
A goal feels meaningful to me only when it refers to something specific I can achieve.	0.62	0.01	0.38

3.1.2 Confirmatory Factor Analysis (CFA)

A confirmatory factor analysis was conducted to test a two-factor model corresponding to the abstract and concrete goal dimensions identified in the final exploratory analysis. Each item specified to load on its respective factor, with the two latent factors allowed to correlate. This model showed only modest fit to the data (CFI = .869, TLI = .851, RMSEA = .086, SRMR = .111). Although the factor structure broadly replicated the exploratory pattern, overall fit fell below conventional standards, suggesting that two correlated factors did not fully capture the covariance among items.

One plausible explanation is that, beyond their abstract versus concrete content, GAP items share variance related to a more general tendency to engage with goals. This interpretation is consistent with the correlated group factors observed in the EFA. To account for this shared variance, a bifactor confirmatory model was estimated, specifying a general factor loading on all items alongside two orthogonal group factors corresponding to abstract and concrete goal representations.

The bifactor model showed substantially improved fit relative to the simple two-factor solution (CFI = .957, TLI = .943, RMSEA = .053, SRMR = .043). Although the chi-square test remained significant ($\chi^2(117) = 204.06, p < .001$), this was expected given the sample size and model complexity (Alavi et al., 2020; Boateng et al., 2018). Notably, the chi-square-to-degrees-of-freedom ratio was 1.74 ($\chi^2=204.06, df=117$), well below the conventional threshold of 2.0 (Alavi et al., 2020). Overall, the bifactor specification provided a markedly better representation of the data, indicating that both a general goal-related factor and specific abstract and concrete dimensions contribute to item covariation.

To quantify the relative contribution of the general factor, Explained Common Variance (ECV) was computed from the standardized loadings. The general factor accounted for 35.5% of the common variance (ECV = .355), indicating that the scale is neither essentially unidimensional nor dominated by a single general factor. Substantial variance remained specific to the abstract and concrete group factors. This pattern supports interpreting the GAP scale as reflecting partially overlapping but distinct preferences for abstract versus concrete goal representation, rather than as a single continuum driven by general goal engagement.

Consistent with the theoretical focus of the present work on preferred level of goal abstraction, subsequent analyses relied on the Abstractness and Concreteness subscale scores rather than the general factor. Subscale scores were computed as the mean of the retained items loading on each factor. This approach is justified by the strong correspondence between observed mean scores and their corresponding specific latent factors in the bifactor model ($r = .93$ for Abstractness and $r = .85$ for Concreteness), indicating that averaging preserves the underlying factor structure with minimal loss of information.

3.2 Cross-domain stability

3.2.1 Within-domains Exploratory Factor Analyses

To examine whether goal abstraction preferences generalize across content domains, exploratory factor analyses were conducted separately for each of the ten domain-specific GAP scales (work, learning, health, relationships, household, community, environment, cooking, gardening, and travelling). Within each domain, the ten items were analyzed using maximum likelihood extraction with oblimin rotation, specifying a two-factor solution corresponding to abstract and concrete goal representations.

Across all domains, the expected two-factor structure was consistently recovered. Abstract-oriented items loaded primarily on one factor and concrete-oriented items on a second factor, with strong primary loadings and minimal cross-loadings. The two-factor solutions accounted for approximately 55% to 69% of the total variance across domains. Despite substantial differences in content, the abstract-concrete distinction remained structurally stable, indicating that goal abstraction preference reflects a domain-general mode of goal representation rather than a set of domain-specific tendencies.

3.2.2 Correlations with domain-general GAP dimensions

To test whether abstract and concrete preferences measured by the general GAP scale are expressed consistently across content domains, domain-specific abstractness and concreteness scores were correlated with the corresponding trait-level GAP dimensions. Across all ten domains, GAP Abstractness was positively associated with domain-level abstractness ($r_s = .19$ to $.43$, all $p_s < .01$). Similarly, GAP Concreteness was strongly associated with domain-level concreteness across all domains ($r_s: .34$ to $.59$, all $p_s < .001$). These convergent associations confirm that the individual differences captured by the 18-item GAP scale generalize reliably across diverse life contexts.

Discriminant analyses revealed a more selective pattern of alignment. GAP Abstractness exhibited near-zero or non-significant associations with domain-level concreteness in nine of the ten domains (range: $r = -.08$ to $.09$), with a small association in the remaining domain ($r = .15$). Conversely, GAP Concreteness showed modest but significant correlations with domain-level abstractness in most domains (r range: $.12$ to $.33$).

Direct comparisons using Fisher's z tests showed that, in the vast majority of cases, the correlation between a GAP dimension and its matching domain-level score was significantly stronger than the corresponding cross-dimension correlation. For Abstractness, the matching correlation was stronger in 8 of 10 domains (all $z_s \geq 2.07$, all $p_s < .05$), with the remaining two domains (Relationship and Environment) showing directional but non-significant differences ($z_s \geq 1.67$). For Concreteness, the matching correlation was stronger in 9 of 10 domains (all $z_s \geq 2.06$, all $p_s < .05$). Together, these findings indicate that the GAP dimensions align selectively with their corresponding theoretical construct rather than reflecting a general tendency to endorse goal-related statements.

To ensure that these effects were not simply driven by a general domain interest, multiple regressions were conducted for each domain. Domain-specific Abstractness and Concreteness scores were regressed on the corresponding trait-level GAP scores while controlling for domain interest. Across all ten domains, trait GAP Abstractness remained a significant predictor of domain-level Abstractness (standardized $\beta_s = .12$ to $.45$, all $p_s < .01$). Similarly, trait GAP Concreteness remained a significant predictor of domain-level Concreteness (standardized $\beta_s = .35$ to $.60$, all $p_s < .001$).

3.2.3 GAP dimensions and domain interest

To examine how GAP dimensions relate to domain engagement, domain-specific interest was regressed on GAP Abstractness and Concreteness scores. GAP Abstractness emerged as a consistent predictor of engagement, showing significant positive associations across all ten domains (estimates from $.23$ to $.38$, all $p_s < .001$). GAP Concreteness also predicted engagement in nine domains, although its effects were more variable in magnitude.

To characterize how preferences for different levels of goal representation shape domain valuation, we computed an alignment index ($\Delta\beta = \beta_{Abs} - \beta_{Conc}$). This index reflects the relative contribution of

abstract versus concrete goal preferences to domain engagement. In ‘balanced’ domains such as Work ($\Delta\beta=.001$) and Cooking ($\Delta\beta\approx 0$), individuals high in both abstract and concrete preferences reported similarly higher engagement. In contrast, a pronounced ‘abstract shift’ emerged in domains oriented toward exploration or self-expansion. In both Travelling ($\Delta\beta=.17$) and Learning ($\Delta\beta=.12$), individuals higher in abstract preference valued these domains significantly more than those primarily oriented toward concrete objectives.

Most notably, the Environment domain exhibited the strongest relative tilt toward Abstractness: engagement was unrelated to concrete preference ($\beta=.10$, $p=.101$) but was robustly predicted by abstract orientation ($\beta=.23$, $p<.001$). Together, these findings indicate that the GAP scale captures a meaningful agentive style. Some individuals derive engagement from mastering proximal, procedural aspects of activity, whereas others derive engagement from distal, symbolic, or purpose-driven meanings. This latter orientation selectively enhances the valuation of domains in which the overarching goals and broader significance are more salient than immediate implementation.

3.3 Convergent and discriminant validity

To evaluate convergent and discriminant validity, we examined zero-order correlations between the GAP dimensions and established measures of personality, agency, and cognitive style (see **Figure 1**).

The two GAP dimensions showed distinct patterns of association with the Big Five personality traits (**Table 4**). GAP Abstractness was positively associated with Openness to Experience ($r=.25$, $p<.001$) consistent with a tendency toward broad exploration and engagement with high-level meanings. In contrast, GAP Concreteness was consistently associated with Conscientiousness ($r=.36$, $p<.001$), in line with the procedural and task-oriented nature of concrete goal representation. Both dimensions were negatively correlated with Neuroticism (Abstract: $r=-.13$; Concrete: $r=-.16$), suggesting that stronger engagement with goals at either level is modestly associated with greater emotional stability.

Table 4. Zero-order correlations between GAP dimensions and external validation measures.

Variable	GAP Abstractness	GAP Concreteness	GAP Total
Openness	0.25***	-0.02	0.17**
Conscientiousness	0.07	0.36***	0.37***
Extraversion	0.26***	0.20***	0.38***
Agreeableness	0.11	0.24***	0.30***
Neuroticism	-0.13*	-0.16**	-0.24***
Locus: Internal	0.22***	0.37***	0.49***
Locus: Powerful others	-0.02	-0.04	-0.06
Locus: Chance	-0.02	-0.08	-0.09
Future orientation	0.15*	0.05	0.16*
Self-efficacy	0.23***	0.25***	0.40***
BIF	0.19**	0.12*	0.25***

Both GAP dimensions were positively associated with General Self-Efficacy (Abstract: $r=.23$; Concrete: $r=.25$) and with an Internal Locus of Control (Abstract: $r=.22$; Concrete: $r=.37$). The stronger association between Concreteness and Internal Locus suggests that a sense of personal control is particularly tied to defining, managing and executing specific proximal objectives. In contrast, GAP scores were unrelated to External Locus of Control dimensions (Powerful Others and Chance), reinforcing the interpretation of the GAP scale as indexing active, self-directed agency rather than external attribution.

The GAP scale also showed convergent validity with existing measures of abstraction and temporal perspective. Both GAP Abstractness ($r=.19$, $p<.01$) and GAP Concreteness ($r=.12$, $p<.05$) were positively associated with Behavioral Identification Form (BIF) scores, although the modest magnitude of these correlations indicates that the GAP scale captures variance beyond traditional action identification. In addition, GAP Abstractness was positively associated with Future Orientation ($r=.15$, $p<.05$), whereas GAP Concreteness was not ($r=.05$, ns). This pattern supports the interpretation that abstract goal preferences are linked to a broader temporal perspective, whereas concrete preferences are more closely tied to immediate execution.

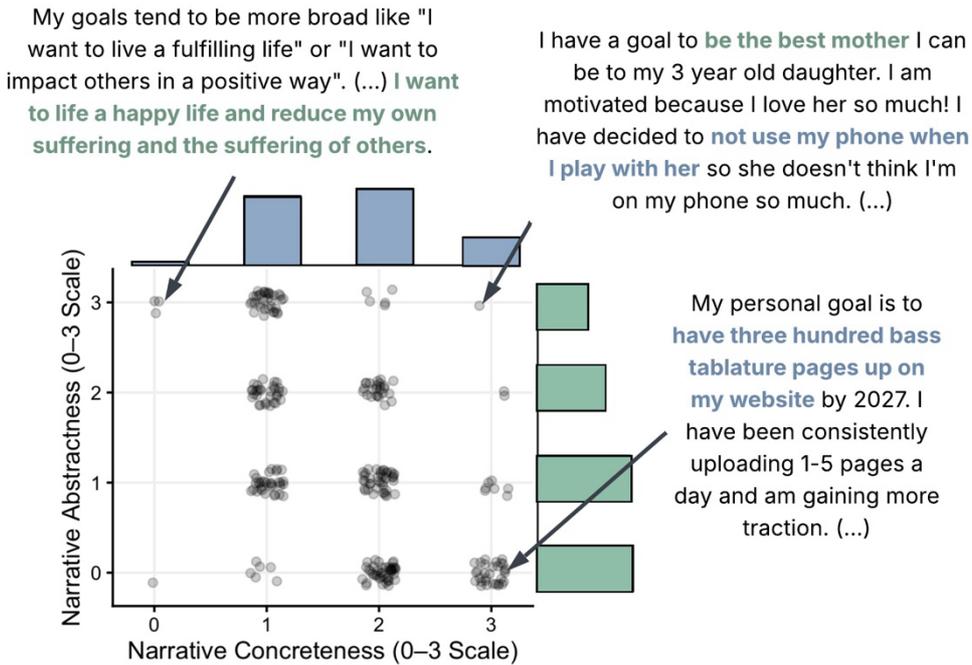
3.4 External validity

Participants were asked to provide an open-ended description of a personally important goal (see 2.5.5). These narratives were subsequently quantified using a state-of-the-art Large Language Model (GPT-5.1) functioning as an independent, blinded rater (Wright et al., 2026). Following established zero-shot text classification protocols (Dubourg et al., 2024; Gilardi et al., 2023; Rathje et al., 2024), the model evaluated each narrative separately for Abstractness and Concreteness using anchored 4-point rating scales (0 = Not concrete at all, 1 = Slightly concrete, 2 = Moderately concrete, 3 = Highly concrete; an analogous scale was used for Abstractness). This procedure translated qualitative goal narratives into quantitative indices suitable for external validation analyses.

3.4.1 Predicting goal narrative task scores

Results for narrative abstractness supported the external validity of the GAP scale (**Figure 2**). In a multiple regression model, trait GAP Abstractness significantly predicted the LLM-annotated abstractness of participants' personal goal narratives ($\beta=0.17$, $t(261)=2.69$, $p=.008$), even when controlling for trait GAP Concreteness. This finding indicates that individuals with a stronger preference for abstract goal representation not only endorse abstract orientations in self-report measures, but also *spontaneously* articulate more abstract goals when describing their intentions. In contrast, results for narrative concreteness were non-significant. Trait GAP Concreteness did not predict narrative-level concreteness ($\beta=0.05$, $p=.46$), and trait GAP Abstractness showed only a marginal negative association with narrative concreteness ($\beta=-0.11$, $p=.083$). Given the modest effect sizes observed for abstractness, these null findings may reflect limited statistical power rather than the absence of a true association (see Replication section).

A. Space of LLM-annotated spontaneous goal narratives



B. Associations between GAP traits and narrative expression

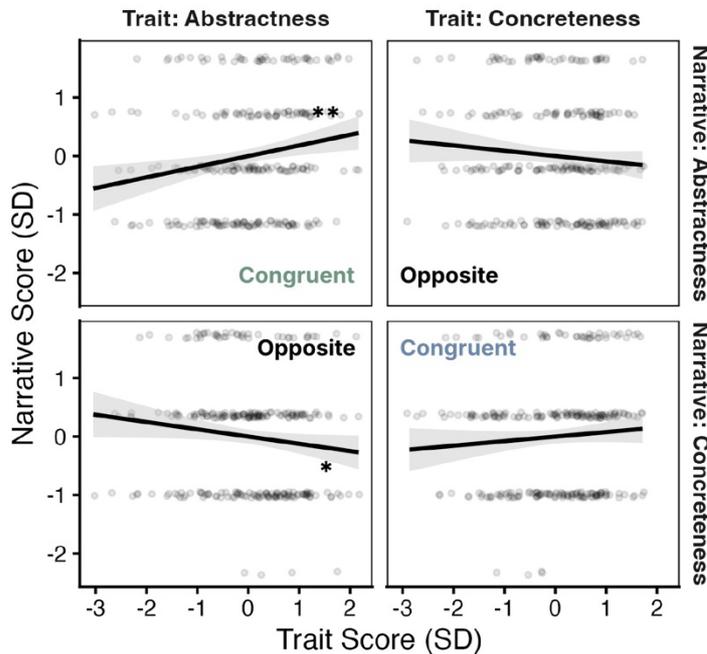


Figure 2. Green elements represent Abstractness and blue elements represent Concreteness. **(A) Annotated narrative scores.** Participants were instructed to describe, in their own words, a personally important goal they had pursued or were currently pursuing. Each narrative was independently evaluated using a large language model (LLM) and assigned separate ratings of Abstractness and Concreteness on anchored 0–3 scales. Abstractness indexed the extent to which the narrative emphasized broad, high-level purposes or overarching life directions, whereas Concreteness indexed the extent to which it emphasized specific, action-proximal steps or narrowly defined outcomes. The scatterplot displays the joint distribution of narratives across both dimensions, illustrating the observed space of goal representations. **(B) Trait–Narrative Correspondence.** Panels depict the relationship between standardized self-reported GAP trait scores (Abstractness and Concreteness) and standardized LLM-annotated narrative scores. Congruent panels (top-left and bottom-right) show

matching trait–narrative dimensions (e.g., GAP Abstractness predicting narrative Abstractness), whereas opposite panels show cross-dimensional associations. Regression lines illustrate the direction of association with positive slopes in congruent panels and negative slopes in opposite panels, consistent with theoretical expectations. However, only associations involving GAP Abstractness reached statistical significance in this sample. Shaded ribbons indicate 95% confidence intervals.

3.4.2 Incremental validity

To assess whether the GAP scale provides predictive value beyond existing psychological constructs, hierarchical linear regressions were conducted separately for narrative abstractness and concreteness. Predictors were entered sequentially: temporal horizon (Step 1), action identification as measured by the BIF (Step 2), the Big Five personality traits (Step 3), and the GAP dimensions (Step 4). For narrative abstractness, the results confirmed significant incremental validity of the GAP scale ($F(2,254)=3.63, p=.028$). The addition of the GAP dimensions in the final step significantly improved model fit, more than doubling the explained variance relative to the baseline personality model ($\Delta R^2=.027$; Total $R^2=.061$). In the final model, trait GAP Abstractness emerged as the strongest (marginal) predictor ($\beta=.13, t=1.72, p=.086$), whereas no other variables reached significance.

In contrast, the model predicting narrative concreteness showed no significant improvement following the inclusion of the GAP dimensions ($F(2,254)=1.99, p=.14$). Neither trait GAP Concreteness ($\beta=.04, p=.41$) nor any baseline predictors significantly predicted narrative-level concreteness.

Taken together, these findings indicate that spontaneous goal abstractness is uniquely associated with a latent agentic orientation captured by the GAP scale, above and beyond established measures of personality, temporal orientation, and action identification. By contrast, narrative concreteness appears largely independent of these measured traits (but see Section 4).

3.4.3 Convergence with the forced-choice measure

To assess whether individuals have conscious access to their agentic preferences and to validate a minimal, single-item proxy of the construct, participants completed a forced-choice task in which they classified themselves as either more abstract-oriented or more concrete-oriented. This categorical self-identification was analyzed using logistic regression to evaluate the predictive power of the trait-level GAP dimensions relative to a set of thirteen psychological predictors. The analyses tested whether GAP scores uniquely predicted how individuals consciously categorized their goal-setting tendencies.

In the primary logistic model, GAP Abstractness and GAP Concreteness emerged as the only significant predictors of the forced-choice outcome (**Table 5**). A one-standard-deviation increase in trait GAP Abstractness was associated with approximately doubled odds of identifying as abstract-oriented ($OR=2.01, z=3.41, p=.001, 95\% CI [1.36,3.05]$). Conversely, a one-standard-deviation increase in trait GAP Concreteness was associated with an 81% reduction in the odds of choosing the abstract label ($OR=0.19, z=-6.12, p<.001, 95\% CI [0.11,0.31]$), reflecting a strong shift toward concrete self-identification.

The distinctiveness of the GAP dimensions was further supported by the absence of effects for established personality and cognitive measures. The Behavioral Identification Form was not significantly related to the forced-choice classification ($OR = 1.19, p = .30$), nor were any of the Big Five personality traits, including Openness ($p = .25$) and Conscientiousness ($p = .49$). Similarly, self-efficacy ($p = .16$), temporal orientation ($p = .50$), and all three locus-of-control dimensions – Internal ($p = .31$), Powerful others ($p = .388$), and Chance ($p = .169$) – were unrelated to participants' self-

classified orientation. Taken together, these findings indicate that the GAP scale captures a distinctive agentic orientation that is not reducible to standard personality, control, or action-identification constructs. The strong correspondence between trait-level GAP scores and explicit self-classification further suggests that individuals have reliable introspective access to their preferred level of goal abstraction.

Table 5. Logistic regression predicting forced-choice self-classification.

Predictor	Odds ratio	95% CI	p
GAP abstractness	2.010	[1.36, 3.05]	0.001***
GAP concreteness	0.190	[0.11, 0.31]	0.000***
Openness	0.820	[0.59, 1.14]	0.245
Conscientiousness	0.850	[0.54, 1.35]	0.489
Extraversion	1.120	[0.74, 1.7]	0.605
Agreeableness	1.410	[0.97, 2.09]	0.075
Neuroticism	1.390	[0.85, 2.31]	0.192
Internal locus of control	1.280	[0.8, 2.06]	0.307
Powerful others locus	0.810	[0.5, 1.3]	0.388
Chance locus	1.440	[0.86, 2.46]	0.169
Temporal horizon	1.150	[0.78, 1.71]	0.494
Self-efficacy	1.450	[0.87, 2.46]	0.159
Behavior Identification Form	1.190	[0.86, 1.66]	0.293

To evaluate whether individuals' conscious self-categorization translates into spontaneous behavioral framing, we tested whether the single-item forced-choice measure predicted LLM-annotated features of participants' goal narratives. This analysis examined whether a minimal self-assessment could account for variance in goal representation beyond established personality and cognitive measures.

The forced-choice orientation significantly predicted the level of abstraction expressed in participants' narratives. In a hierarchical regression controlling for the Big Five, BIF, and temporal orientation, adding the forced-choice item significantly improved model fit ($F(1,255)=5.46$, $p=.02$). Participants who self-identified as abstract-oriented produced narratives with higher abstract content than those identifying as concrete-oriented, ($\beta=0.31$, $t(255)=2.34$, $p=.02$). None of the other predictors in the final model reached statistical significance, including Openness ($p=.76$), Conscientiousness ($p=.49$), and the BIF ($p=.29$), indicating that the forced-choice item captured unique variance in narrative abstractness.

Importantly, the forced-choice measure also significantly predicted narrative concreteness. Its inclusion yielded incremental validity over the baseline model ($F(1,255)=4.07$, $p=.045$). Self-identifying as abstract-oriented was associated with lower narrative concreteness ($\beta=-0.19$, $t(255)=-2.02$, $p=.045$). As in the abstractness model, established traits showed no predictive utility, with Conscientiousness ($p=.97$) and the BIF ($p=.64$) unrelated to narrative concreteness. Notably, this effect emerged in a context in which the multi-item GAP Concreteness scale did not significantly predict narrative concreteness.

These findings suggest that individuals have reliable introspective access to their agentic style. They further indicate that even a minimal, single-measure measure of goal abstraction preference can meaningfully predict how people spontaneously frame their most important goals, in some cases outperforming substantially longer personality and cognitive inventories.

3.5 Temporal stability

To assess the temporal stability of the GAP dimensions, a subsample of participants ($N=168$) completed the scale again after a one-month interval. Test-retest reliability was evaluated using Intraclass Correlation Coefficients (ICC, two-way mixed effects, consistency, single measures). Both GAP dimensions demonstrated significant temporal stability ($p<.001$), although their magnitude differed.

GAP Concreteness showed good temporal stability (ICC=.64, 95% CI [.53,.72]), indicating that preference for concrete goal representation functions as a relatively stable individual difference. GAP Abstractness exhibited more moderate stability (ICC=.52, 95% CI [.4,.62]). This discrepancy suggests that preferences for abstract goals may be somewhat more sensitive to changing priorities or contextual factors over a one-month period. Nonetheless, both ICCs indicate meaningful temporal stability, supporting the interpretation of the GAP dimensions as reflecting stable individual differences.

A longitudinal analysis of the single-item forced-choice measure ($N=175$) indicated lower stability than the continuous GAP dimensions. Cohen's Kappa was .38 (95% CI [0.25,0.52]), substantially below the ICCs observed for both Abstractness and Concreteness. This level of agreement suggests that, although individuals exhibit relatively stable latent preferences for goal abstraction, their binary self-classification shows moderate fluctuations over time.

3.6 Sociodemographic correlates

Finally, we examined associations between age, gender, and perceived financial status and the GAP dimensions across adulthood. All continuous predictors were standardized prior to analysis.

Comparisons of linear and quadratic age models indicated that a linear specification was sufficient for both GAP dimensions, as including a quadratic age term did not significantly improve model fit for Abstractness ($F[1,254]=0.05$, $p=.82$) or Concreteness ($F[1,254]=1.05$, $p=.307$). In the linear model, age was a significant negative predictor of GAP Abstractness ($\beta=-0.13$, $t[255]=-2.11$, $p=.036$), indicating that older participants reported a lower preference for high-level, symbolic goal representations. In contrast, age was unrelated to GAP Concreteness ($\beta=-0.01$, $p=.903$), suggesting that preferences for procedural, low-level goal representation remain relatively stable across the sampled age range.

Gender did not significantly predict either GAP Abstractness ($\beta=0.06$, $p=.619$) or GAP Concreteness ($\beta=-0.08$, $p=.547$). Overall, the sociodemographic model accounted for more variance in GAP Abstractness ($R^2=.045$) than in GAP Concreteness ($R^2=.022$).

4 Replication

4.1 The present study

Study 2 provides a replication of the core validation tests reported in Study 1, using the same conceptual definition of goal abstraction preference and the same operationalization of key outcomes. Consistent with the rationale outlined in Section 2.1 and the validation strategy implemented in Sections 3.1–3.4, the replication focuses on two components: (i) the trait-level factor structure of goal

abstraction preferences and (ii) external validity assessed via an independently coded open-ended goal narrative task. This study was pre-registered (<https://osf.io/8q4w2/>).

Relative to Study 1, the replication retains the trait-level GAP questionnaire and the goal narrative task described in Sections 2.5.1 and 2.5.5, as well as the same set of external validation measures (Section 2.5.6). Components specific to Study 1's cross-domain module – namely the domain-specific GAP items and domain interest ratings (Sections 2.5.2–2.5.3) – were not included in Study 2 and are therefore not reported here. Accordingly, Study 2 reproduces the core analyses as from Study 1's factor-structure and external-validity sections (Sections 3.1 and 3.4), following the same scoring conventions and analytic choices unless otherwise specified in the pre-registration.

4.2 Participants

Participants were recruited via Prolific Academic to complete an online survey and received £4.50 for a study lasting approximately 12 minutes. The final analytic sample comprised 705 participants. Ages ranged from 18 to 85 years ($M = 42.56$, $SD = 13.87$). Gender was reported as female by 342 participants (48.5%), male by 349 participants (49.5%), non-binary by 13 participants (1.8%), and not disclosed by 1 participant (0.1%).

4.3 Data quality screening and exclusions

Data quality screening followed the same logic described in Section 2.5, with additional precautionary measures implemented in this replication. All exclusion criteria and thresholds were specified in advance and preregistered prior to data analysis.

First, an independent CAPTCHA verification step was implemented at the third stage of the study to prevent automated progression through the survey. This procedure resulted in 181 session terminations prior to survey completion; no data were recorded for these cases. Second, although the preregistered plan specified excluding non-completers, all participants who passed the CAPTCHA completed the survey and were therefore retained at this stage (no exclusions). Third, Qualtrics reCAPTCHA v3 was used as a coarse screen for likely automated traffic; participants with scores below the preregistered threshold of 0.8 were excluded ($n = 57$). Fourth, participants who failed any embedded instructed-response item were excluded ($n = 54$). Fifth, participants flagged by Prolific as potentially inauthentic were excluded ($n = 28$). After applying all exclusion criteria, the final analytic sample comprised 705 participants.

4.4 Confirmatory Factor Analysis

To evaluate whether the factor structure identified in Study 1 replicated in an independent sample, we conducted confirmatory factor analyses on the trait-level GAP items using the same modeling strategy and estimation procedures described in Section 3.1.2.

Specifically, we estimated a bifactor model specifying a general factor loading on all 18 items, alongside two orthogonal group factors corresponding to Abstractness and Concreteness. The general factor captured variance common to all GAP items, whereas the group factors captured residual variance specific to abstract versus concrete goal representations. All latent factors were specified as orthogonal. This bifactor model showed good fit to the data ($CFI = .967$, $TLI = .956$, $RMSEA = .042$, $SRMR =$

.036), indicating that both a general goal-related factor and specific abstraction-level preferences contribute to item responses. Consistent with Study 1, subsequent analyses relied on the Abstractness and Concreteness subscale scores rather than the general factor.

4.5 Convergent and discriminant validity

As in Study 1, we examined convergent and discriminant validity of the GAP dimensions. In this replication, analyses focused on conceptually proximal constructs: the Big Five traits, Temporal Horizon, and the Behavior Identification Form (BIF). Correlations are reported for both raw mean scores and latent bifactor scores.

The overall pattern converged with Study 1. Openness was positively associated with GAP Abstractness ($r = .11, p < .01$; latent $r = .16, p < .001$) and unrelated to Concreteness ($r = .01$; latent $r = -.01$), replicating the abstract–openness link. Conscientiousness was strongly related to GAP Concreteness ($r = .29, p < .001$; latent $r = .24, p < .001$), with a smaller association with latent Abstractness ($r = .11, p < .01$). Extraversion and Agreeableness showed small but consistent positive correlations with both dimensions ($r_s \approx .10-.25$), mirroring the broader positive manifold observed in Study 1. Neuroticism was negatively associated with both Abstractness and Concreteness ($r_s \approx -.09$ to $-.14$), again consistent with prior findings.

Regarding BIF, Study 1 showed positive correlations with both GAP Abstractness ($r = .19^{**}$) and GAP Concreteness ($r = .12^*$), suggesting some shared variance across dimensions. In Study 2, however, the pattern was more clearly discriminant. BIF correlated with Abstractness ($r = .20^{***}$) but was unrelated to Concreteness ($r = .01$). The magnitude of the Abstractness association closely replicates Study 1, whereas the Concreteness association does not. This pattern supports the interpretation that BIF, as a measure of high-level action identification, aligns primarily with abstract goal representation.

Temporal Horizon showed a more nuanced pattern. Using raw mean scores, it correlated with Concreteness ($r = .15, p < .001$) but not with Abstractness ($r = .00$), reversing the pattern observed in Study 1. However, with latent bifactor scores, the association shifted: Temporal Horizon was positively related to latent Abstractness ($r = .14, p < .001$) and unrelated to latent Concreteness ($r = .04, ns$). This switch likely reflects the effect of the bifactor decomposition. Raw means scores include variance shared with the general factor and cross-loadings, which may inflate associations. The latent specific factors partial out this shared variance and orthogonalize Abstractness and Concreteness. Once common variance is removed, future orientation appears more closely aligned with higher-level, purpose-oriented goal representations (Abstractness) rather than with concrete implementation preferences.

Overall, the replication supports the theoretical structure observed in Study 1 while demonstrating that the bifactor latent scores sharpen discriminant validity by reducing cross-associations attributable to shared variance.

4.6 External validity

4.6.1 Predicting goal narrative task scores

External validity was assessed using the same open-ended goal narrative task and annotation procedure described in Section 3.4. Narratives were elicited using identical instructions, and the same LLM-based

zero-shot annotation pipeline was applied to generate separate Abstractness and Concreteness scores on 0–3 scales (**Figure 3**). In this replication, annotation prompts and scoring procedures were preregistered prior and implemented without modification.

Consistent with Study 1, trait GAP Abstractness robustly predicted narrative abstractness. In a multiple regression model including both GAP dimensions, GAP Abstractness showed a strong positive association with LLM-annotated narrative abstractness ($\beta = .22$, $t(701) = 5.75$, $p < .001$), whereas GAP Concreteness showed a significant negative association ($\beta = -.17$, $p < .001$). When entered alone, GAP Abstractness accounted for approximately 7% of the variance in narrative abstractness ($R^2 = .071$, $p < .001$), replicating the pattern observed in Study 1.

Critically, and in contrast to Study 1, the replication also provided clear behavioral evidence for the Concreteness dimension. GAP Concreteness significantly predicted narrative concreteness when entered jointly with GAP Abstractness ($\beta = .10$, $t(702) = 2.58$, $p = .010$). When entered alone, GAP Concreteness also positively predicted narrative concreteness ($\beta = .15$, $p < .001$). Moreover, GAP Abstractness showed a significant negative association with narrative Concreteness ($\beta = -.18$, $p < .001$).

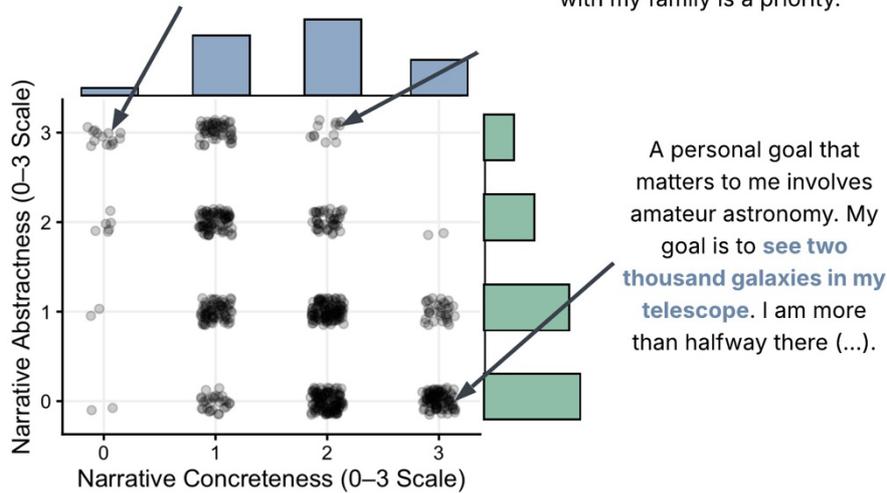
Taken together, these results reveal a double dissociation: preferences for abstract goal (Abstractness) predict the abstract framing of spontaneously generated goals, whereas preferences for concrete goal (Concreteness) predict their action-proximal framing of personal narratives. Whereas Study 1 provided clear support for the Abstractness dimension but limited evidence for Concreteness – likely due to limited statistical power – the present pre-registered replication demonstrates that both GAP dimensions are behaviorally expressed in spontaneous narrative production in a larger sample.

Task order was successfully counterbalanced across the final sample (GAP scale first: $n = 380$; Goal Narrative Task first: $n = 325$). In line with the preregistered plan, we tested whether task order moderated the association between GAP traits and narrative outcomes by comparing models with and without interaction terms. For narrative Abstractness, adding the interactions between order and both GAP dimensions did not improve model fit ($\Delta F(2, 698) = 0.33$, $p = .72$). For narrative Concreteness, the interaction block was likewise non-significant ($\Delta F(2, 699) = 0.52$, $p = .60$). None of the individual interaction coefficients reached significance (all p s $> .30$), and mean levels of GAP scores and narrative ratings were comparable across task orders.

A. Space of LLM-annotated spontaneous goal narratives

My life has felt rather aimless lately, as I most recently achieved the goal of obtaining my masters degree. As such, I have set the broad goal of **living a peaceful and satisfying life**.

I am motivated to **be as healthy as I can**. (...) I make a point to **go outside everyday** and enjoy nature. I maintain a healthy work life balance. Spending time with my family is a priority.



B. Associations between GAP traits and narrative expression

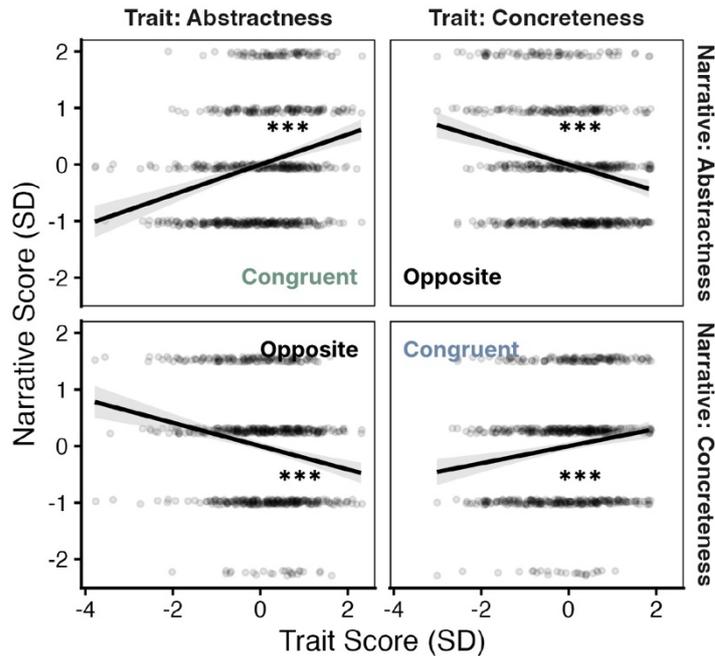


Figure 3. Green elements represent Abstractness and blue elements represent Concreteness. **(A) Annotated narrative scores.** Participants were instructed to describe, in their own words, a personally important goal they had pursued or were currently pursuing. Each narrative was independently evaluated using a large language model (LLM) and assigned separate ratings of Abstractness and Concreteness on anchored 0–3 scales. Abstractness indexed the extent to which the goal description emphasized broad, high-level purposes or overarching life directions, whereas Concreteness indexed the extent to which it emphasized specific, action-proximal steps or narrowly defined outcomes. The scatterplot displays the joint distribution of narratives across both dimensions, illustrating the observed space of goal representations. **(B) Trait–Narrative Correspondence.** Panels depict the relationship between standardized self-reported GAP trait scores (Abstractness and Concreteness) and standardized LLM-annotated narrative scores. Congruent panels (top-left and bottom-

right) show matching trait-narrative dimensions (e.g., GAP Abstractness predicting narrative Abstractness), whereas opposite panels represent cross-dimensional associations. Regression lines illustrate the direction of association, with positive slopes in congruent panels and negative slopes in opposite panels, consistent with theoretical expectations. All four models reached statistical significance in this sample. Shaded ribbons indicate 95% confidence intervals.

4.6.2 *Incremental validity*

Incremental validity was examined using hierarchical regressions analyses (as in Study 1). For goal Abstractness, adding BIF to Temporal Horizon improved model fit ($\Delta F(1,701) = 6.31, p = .012$), whereas adding the Big Five traits did not ($\Delta F(5,696) = 1.01, p = .410$). Critically, inclusion of the two GAP dimensions significantly improved model fit ($\Delta F(2,694) = 35.15, p < .001$), increasing explained variance from $R^2 = .016$ to $R^2 = .107$ ($\Delta R^2 = .091$). Thus, incorporating GAP increased explained variance more than sixfold relative to the preceding model. In the final model, GAP Abstractness positively predicted narrative abstractness ($\beta = .19, t = 4.84, p < .001, 95\% \text{ CI } [.12, .27]$), whereas GAP Concreteness showed a significant negative association ($\beta = -.20, t = -4.96, p < .001$). No other predictors reached statistical significance.

For goal Concreteness, adding BIF to Temporal Horizon improved model fit ($\Delta F(1,702) = 4.87, p = .028$), while adding the Big Five did not ($\Delta F(5,697) = 1.38, p = .229$). The inclusion of the GAP dimensions again significantly improved model fit ($\Delta F(2,695) = 16.75, p < .001$), increasing explained variance from $R^2 = .017$ to $R^2 = .062$ ($\Delta R^2 = .045$), corresponding to a near fourfold increase. In the final model, GAP Concreteness positively predicted narrative concreteness ($\beta = .09, t = 2.75, p = .006, 95\% \text{ CI } [.03, .15]$), whereas GAP Abstractness showed a negative association ($\beta = -.13, t = -3.96, p < .001$). No other predictors were statistically significant.

4.6.3 *Convergence with the forced-choice measure*

Forced-choice self-classification showed strong convergence with the continuous GAP dimensions. In a logistic regression including GAP Abstractness, GAP Concreteness, the Big Five traits, Temporal Horizon, and BIF, both GAP dimensions emerged as robust predictors of the forced-choice outcome (GAP Abstractness: $b = 1.29, z = 8.32, p < .001$; GAP Concreteness: $b = -1.97, z = -11.42, p < .001$). Most other covariates were non-significant (Openness: $p = .563$; Temporal horizon: $p = .282$; BIF: $p = .712$), with only small additional effects for Conscientiousness ($b = -0.35, z = -2.44, p = .015$) and Neuroticism ($b = -0.35, z = -2.39, p = .017$).

The forced-choice measure also predicted narrative ratings. In direct regressions, self-classification as abstract-oriented was associated with higher narrative Abstractness ($b = 0.446, t(702) = 5.99, p < .001, R^2 = .049$) and lower narrative Concreteness ($b = -0.280, t(703) = -4.73, p < .001, R^2 = .031$). Incremental models further showed that adding the forced-choice item to a baseline model including the Big Five, BIF, and temporal horizon significantly improved prediction of narrative Abstractness, $\Delta F(1,695) = 35.00, p < .001$ (full model $R^2 = .063$; GAP forced: $b = 0.455, t = 5.92, p < .001$), and narrative Concreteness, $\Delta F(1,696) = 21.32, p < .001$ (full model $R^2 = .046$; GAP forced: $b = -0.283, t = -4.62, p < .001$). In both full models, no other covariates reached statistical significance (all $ps > .05$).

4.7 Sociodemographic correlates

As in Study 1, adding the squared age term did not improve model fit for either GAP Abstractness, $\Delta F(1,685) = 0.31$, $p = .576$, or GAP Concreteness, $\Delta F(1,685) = 0.04$, $p = .848$. We therefore report linear models including age, gender, childhood SES, and adult SES (restricted to participants identifying as male or female). For GAP Abstractness, higher adult SES was associated with stronger abstract preference ($\beta = 0.125$, $t(686) = 3.15$, $p = .002$), and Abstractness decreased with age ($\beta = -0.132$, $t(686) = -3.41$, $p < .001$). Childhood SES ($\beta = -0.028$, $p = .479$) and gender ($\beta = -0.027$, $p = .723$) were not significant predictors. The overall variance explained was modest ($R^2 = .030$). For GAP concreteness, none of the sociodemographic predictors reached significance (adult SES: $\beta = 0.038$, $p = .343$; age: $\beta = 0.028$, $p = .484$; childhood SES: $\beta = -0.009$, $p = .819$; gender: $\beta = -0.053$, $p = .501$), and the model explained negligible variance ($R^2 = .003$).

5 Cross-sample analyses

5.1 Measurement invariance across samples

A multi-group bifactor CFA was conducted to examine measurement invariance of the GAP scale across Study 1 and the replication sample. The configural model demonstrated good fit (CFI = .964, RMSEA = .046). Imposing equality constraints on factor loadings (metric invariance) did not reduce fit ($\Delta CFI = +.002$, $\Delta\chi^2(33) = 21.81$, $p = .93$). Constraining item intercepts (scalar invariance) likewise maintained adequate fit ($\Delta CFI = -.001$, $\Delta\chi^2(15) = 19.39$, $p = .20$). Finally, constraining latent means to equality across studies did not degrade fit ($\Delta\chi^2(3) = 0.53$, $p = .91$). Together, these results support full measurement invariance of the bifactor structure across samples. On this basis, the two datasets were pooled for all subsequent analyses.

5.2 Measurement invariance across gender and age

Measurement invariance of the GAP bifactor model was examined across gender (male vs. female) and across age groups defined a priori as young adults (18–29 years; $n = 197$), middle-aged adults (30–49 years; $n = 375$), and older adults (50 years and above; $n = 379$). Multi-group structural equation models were estimated sequentially using robust maximum likelihood. Across gender, the configural model showed good fit (CFI = .961, RMSEA = .056). Constraining factor loadings to equality (metric invariance) resulted in a negligible change in fit ($\Delta CFI = -.001$; RMSEA = .053). Scalar invariance was likewise supported ($\Delta CFI = -.001$; RMSEA = .052), as was strict invariance ($\Delta CFI = -.001$; RMSEA = .051). All ΔCFI values were well below the $-.01$ threshold, indicating strong invariance across men and women.

Across age groups, configural fit was acceptable (CFI = .954, RMSEA = .062). Imposing metric constraints led to a modest decrease in CFI ($\Delta CFI = -.007$) accompanied by a slight improvement in RMSEA ($\Delta RMSEA = -.001$), remaining within conventional criteria. Scalar invariance was also supported ($\Delta CFI = -.001$; $\Delta RMSEA = -.002$). Although the chi-square test for strict invariance reached statistical significance, the change in CFI remained below $-.01$ ($\Delta CFI = -.007$). Given the stability of practical fit indices, scalar invariance across age groups was retained.

Overall, these findings indicate that the bifactor structure of the GAP scale demonstrates strong demographic stability, supporting meaningful comparison of latent factor means and structural relations across gender and age groups.

5.3 Structural equation modelling

A structural equation model was estimated on the pooled dataset ($N = 970$) using robust maximum likelihood (MLR). The measurement component of the GAP scale was specified as the same bifactor structure identified previously, comprising a general factor and two orthogonal specific factors representing GAP Abstractness and GAP Concreteness (all latent covariances fixed to zero). The two narrative outcomes (LLM-annotated Abstractness and Concreteness derived from participants' spontaneous goal descriptions) were regressed simultaneously on GAP Abstractness and GAP Concreteness, while controlling for the Big Five traits (Openness, Conscientiousness, Agreeableness, Neuroticism, Extraversion), the Behavior Identification Form (BIF), and Temporal Horizon.

Overall model fit was acceptable ($\chi^2(275) = 998.60$; robust CFI = .931; robust TLI = .918; robust RMSEA = .050, 90% CI [.046, .054]; SRMR = .079). In the structural component, GAP Abstractness positively predicted narrative abstractness ($\beta = .175$, $p < .001$) and negatively predicted narrative concreteness ($\beta = -.153$, $p < .001$). Conversely, GAP Concreteness negatively predicted narrative abstractness ($\beta = -.145$, $p < .001$) and positively predicted narrative concreteness ($\beta = .092$, $p = .017$). None of the Big Five covariates were significantly associated with either narrative dimension (all $ps \geq .16$), and BIF and Temporal Horizon were likewise non-significant ($ps \geq .098$).

5.4 Person-centered analysis

To complement the variable-centered structural equation modeling approach, a person-centered analysis was conducted to examine whether distinct psychological profiles emerge from the joint distribution of GAP Abstractness and GAP Concreteness. Latent profile analysis (LPA) was performed on standardized factor scores derived from the bifactor measurement model (CFI = .967, TLI = .957, RMSEA = .051, SRMR = .031). Profiles were estimated using Gaussian mixture modeling with equal variances and zero covariances, specifying one to six classes. Model selection was guided primarily by the Bayesian Information Criterion (BIC).

The BIC favored a six-profile solution (BIC = -5400.18). However, inspection of class sizes and centroids indicated that two classes were very small ($n = 9$ and $n = 13$) and reflected extreme tail segments of broader distributions rather than theoretically distinct psychological types. Specifically, these classes represented extreme low-low and extreme high-high configurations on Abstractness and Concreteness.

The mixture model was re-estimated with the number of profiles constrained to four. A Gaussian finite mixture model was fitted using the EM (Expectation Maximization) algorithm with a spherical, equal-volume covariance structure (EII). The four-profile solution yielded a log-likelihood of -2667.42 and a BIC of -5417.37 (ICL = -5980.93), with class sizes of 60 (6.2%), 633 (65.3%), 158 (16.3%), and 119 (12.3%) participants (**Figure 4.A**).

Profile centroids (z -scored factor scores) revealed four interpretable configurations. Profile 1 ($n = 60$) showed very low Abstractness ($M = -2.34$) combined with moderately high Concreteness ($M = 0.79$;

Concrete Profile). Profile 2 (n = 633) clustered near the mean on both dimensions (Abstractness M = -0.02; Concreteness M = 0.06; *Average Profile*). Profile 3 (n = 158) exhibited near-average Abstractness (M = 0.09) but markedly low concreteness (M = -1.56; *Abstract Profile*). Profile 4 (n = 119) displayed simultaneously high abstractness (M = 1.17) and high Concreteness (M = 1.37; *Agentic Profile*).

We then examined whether these profiles differed in the level of abstractness and concreteness of participants' spontaneously goal narratives. Profiles differed significantly in narrative Abstractness ($F(3, 964) = 9.65, p < .001$). Mean narrative Abstractness increased monotonically across profiles, from 0.73 (SD = 0.86) in the Concrete Profile (n = 60) to 1.37 (SD = 1.11) in the Abstract Profile (n = 158), with intermediate values in the Average Profile (M = 1.01, SD = 0.99, n = 633) and the Agentic Profile (M = 1.32, SD = 1.04, n = 119). Differences in narrative concreteness were smaller but statistically significant ($F(3, 965) = 2.66, p = .047$). The Concrete Profile showed the highest narrative concreteness (M = 1.97, SD = 0.74), whereas the Abstract and Agentic Profiles showed slightly lower levels (Ms = 1.70 and 1.66, respectively), with the Average Profile again intermediate (M = 1.79, SD = 0.79). Overall, the person-centered solution converged with the variable-centered SEM results: profiles characterized by stronger abstract goal preferences produced more abstract narratives, whereas differences in narrative concreteness were comparatively attenuated.

5.5 Perceived financial situation

To examine whether ecological conditions shape goal representation, we analyzed the impact of socio-economic context across the pooled dataset. Ecology context was operationalized at two developmental stages. Childhood perceived financial situation captured perceived material sufficiency during upbringing (e.g., "My family usually had enough money for things when I was growing up"), indexing early-life resource security and stability. Adult perceived financial situation assessed current financial security and reduced economic uncertainty (e.g., "I have enough money to buy things I want"; "I don't need to worry too much about paying my bills"). By modeling childhood and adult SES simultaneously (Szepsenwol et al., 2015; Xu et al., 2025), we tested whether early versus current ecological conditions uniquely predict abstract and concrete goal representation at both variable-centered and profile-centered levels.

In variable-centered analyses using standardized scores, adult perceived financial situation showed a significant positive association with GAP Abstractness when controlling for childhood perceived financial situation ($\beta = 0.172, SE = 0.034, t = 5.11, p < .001$), whereas the latter was not significant ($\beta = -0.053, p = .12$). For GAP Concreteness, adult perceived financial situation was also positively associated, though more modestly ($\beta = 0.086, SE = 0.034, t = 2.53, p = .01$), while childhood perceived financial showed no unique effect ($\beta = 0.041, p = .23$).

At the profile level, only adult perceived financial situation reliably differentiated groups. The Concrete Profile showed the lowest adult SES (M = -0.32), whereas the Agentic Profile showed the highest (M = +0.35). Multinomial regression analyses indicated that a one standard-deviation increase in adult perceived financial situation approximately doubled the odds of belonging to the Agentic Profile rather than the Concrete Profile (**Figure 4.B**).

Substantively, this pattern suggests that resource-rich adult environments are associated not merely with greater abstraction, but with a more integrated goal structure. Higher-SES individuals are overrepresented in the profile that combines distal purposes with clearly articulated means. In contrast,

lower-SES environments are associated with reduced abstraction and greater emphasis on immediate, concrete goal framing. This pattern is consistent with an ecological calibration account, whereby current resource security supports the cognitive bandwidth required to maintain higher-level goal representations alongside their implementation structure.

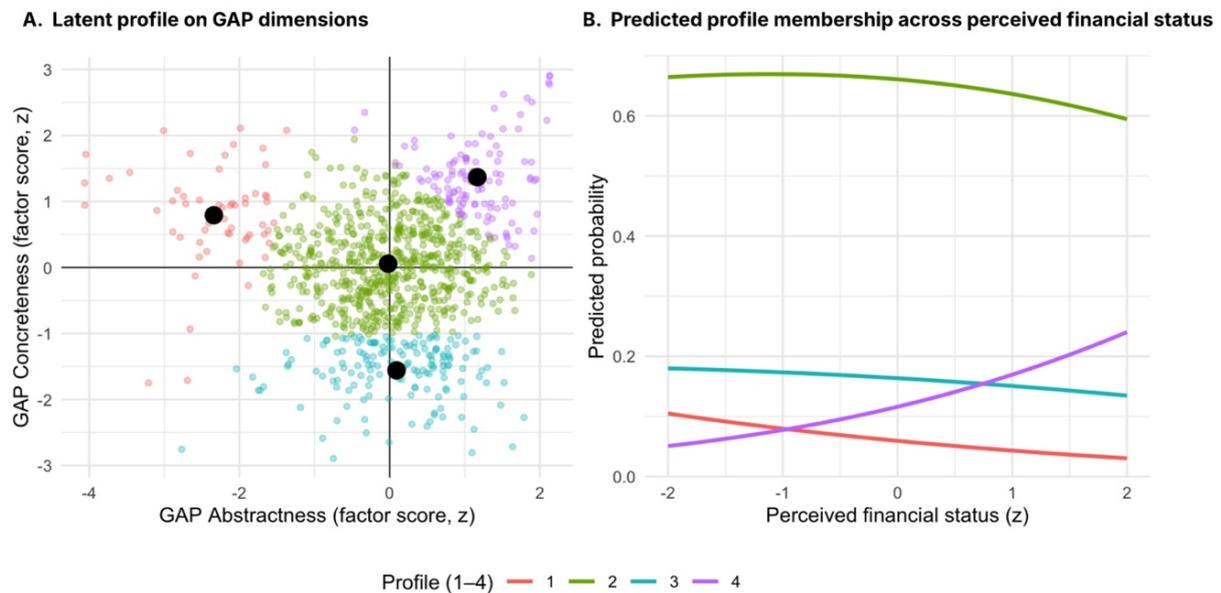


Figure 4. Ecological calibration of goal abstraction profiles. **A.** Latent profile analysis (Gaussian finite mixture model, spherical equal-variance solution, $k = 4$) conducted on standardized factor scores from the bifactor GAP measurement model. Points represent individuals; black dots indicate class centroids. Profiles differ in their joint configuration of abstract (x-axis) and concrete (y-axis) goal preferences. **B.** Predicted probabilities of profile membership from a multinomial logistic regression in which profile (1–4) was regressed on standardized adult perceived financial status (childhood SES fixed at its mean). Curves represent model-implied probabilities across ± 2 SD of adult SES. Higher perceived financial security increases the likelihood of belonging to the Agentic Profile and decreases the likelihood of belonging to the other profiles, particularly the Concrete Profile.

6 Discussion

The present research introduces and validates the Goal Abstraction Preference (GAP) scale, a psychometric instrument designed to capture stable individual differences in the hierarchical level at which individuals preferentially represent their goals. Whereas frameworks such as Action Identification Theory and Construal Level Theory have primarily conceptualized abstraction as a situational or performance-dependent variable (Trope & Liberman, 2010; Vallacher & Wegner, 1985), the present findings suggest that individuals exhibit domain-general, trait-like preferences for particular levels of goal representation that generalize across contexts. This shift from “perceived agency” – how much control one feels – to “preferred agency” – the level at which one seeks to exercise control – aligns naturally with hierarchical models of intention such as the Distal-Proximal-Motor (DPM) framework (Pacherie, 2000, 2008). Within this perspective, GAP Abstractness and Concreteness reflect stable tendencies to regulate action at more distal or more proximal levels of intention.

Across studies, factor analyses consistently supported a bifactor structure rather than a single continuum. Abstractness and Concreteness emerged as related but distinct preferences, a pattern replicated across samples. This distinction is theoretically consequential. In situational theories such as Construal Level Theory, abstract and concrete construals are treated as mutually exclusive states –

adopting one generally entails suppressing the other at a given moment (Trope & Liberman, 2010). In contrast, when abstraction is conceptualized as a stable preference, rather than a transient mindset, a stronger orientation toward abstract goals does not necessarily imply a weaker orientation toward concrete representation. Instead, Abstractness and Concreteness reflect the hierarchical organization of goals, in which distal purposes and proximal means can operate as coordinated components of an integrated goal system (Carver & Scheier, 1982; Kruglanski et al., 2002). The identification of an “Agentic Profile” characterized by high levels of both dimensions provides empirical support for this integrative view.

The external validity of the GAP scale was demonstrated by its ability to predict the level of abstractness and concreteness expressed in spontaneous goal narratives, substantially increasing explained variance beyond baseline personality models. In Study 2, this pattern generalized to both dimensions: GAP Abstractness reliably predicted higher narrative abstractness, and GAP Concreteness reliably predicted greater narrative concreteness. Individual differences in preferred goal representation were thus reflected not only in self-reports but also in how participants spontaneously articulated their personally important goals. This symmetric pattern across studies strengthens the conclusion that Abstractness and Concreteness capture behaviorally meaningful and distinct preferences for the types of goals individuals are inclined to pursue.

Methodologically, this research leveraged Large Language Models (LLMs) as independent, blinded raters to bridge the gap between qualitative richness and quantitative rigor. This automated annotation approach enabled the systematic quantification of goal representation preferences across hundreds of spontaneous narratives. The use of LLMs for scoring qualitative data represents a significant opportunity for the behavioral sciences. Recent work shows that LLM-based annotations can converge with self-report measures of personality traits at levels comparable to – or exceeding – established benchmarks (Wright et al., 2026), providing a scalable solution for extracting structured psychological dimensions from brief, unformatted texts (Rathje et al., 2024). More generally, this approach supports a more ecologically grounded psychology in which natural language is treated as a primary source of quantifiable data.

The present findings suggest that preferred levels of goal representation may systematically shape responses to a wide range of existing measurement tools. Because tasks and scales often implicitly target a specific level of the goal hierarchy – ranging from action-proximal motor tasks to abstract, value-laden self-reports – observed differences in constructs such as agency, control, or motivation may partly reflect a match or mismatch between an instrument’s framing and an individual’s preferred mode of regulation. Agency inferred from low-level tasks may underestimate the agency of abstract-oriented individuals, whereas highly abstract measures may overlook the agency of those who preferentially regulate action at a concrete level. Accounting for GAP may therefore help explain inconsistencies across tasks and improve the construct validity and interpretability of existing measures by clarifying where, within the goal hierarchy, agency is being assessed.

Finally, GAP dimensions may help address the intention-action gap in applied domains such as health communication and public policy (Avenel et al., 2026). Many interventions are formulated at a high level of abstraction – emphasizing broad values (e.g. “environmental protection”, “healthy aging”) – which may be motivationally endorsed yet remain operationally inert for individuals high in GAP Concreteness. For these individuals, messages that do not specify concrete actions (e.g. what to change, when, and how) may fail to translate into behavior despite strong stated support. Conversely, highly

prescriptive or micro-managed prescriptions may fail to engage individuals higher in GAP Abstractness, who seek integrative meaning rather than procedural guidance alone. From this perspective, narrowing the gap between intention and behavior may require tailoring interventions to individuals' preferred level of goal representation, framing goals at the level where people feel most able to exert control and translate intentions into action. This perspective extends the broader case for personality-informed interventions (Chapman et al., 2014; Joyal-Desmarais et al., 2022; Hirsh et al., 2012; Kreuter & Wray, 2003)

Several questions remain for future investigation, particularly regarding the ecological calibration of abstract goal preferences. Study 2 provides convergent evidence that Abstractness – and especially membership in the Agentic Profile – is associated with current perceived financial security. Although these findings are correlational and do not establish causal direction, they are consistent with the hypothesis that ecological conditions, such as resource availability and environmental predictability, shape the level at which individuals preferentially represent their goals (Farkas et al., 2022). Notably, Abstractness was more strongly associated with adult than childhood perceived financial situation, suggesting that such calibration may occur relatively dynamically in response to present ecological conditions rather than being fixed early in life. This pattern may also help explain why GAP Abstractness showed lower temporal stability than Concreteness: higher-level goal representation may be more responsive to fluctuations in perceived security and opportunity. Future research should therefore leverage longitudinal and experimental designs to determine whether changes in ecological context causally influence shifts in goal abstraction preferences.

A final question concerns the justification for introducing a new scale in a field already structured by well-established models of personality such as the Big Five. The present work does not seek to multiply constructs unnecessarily or to compete with comprehensive trait taxonomies. Indeed, integrative analyses suggest that many psychological scales can be meaningfully located within the Big Five framework (Bainbridge et al., 2022). Yet, our findings indicate that goal abstraction preference cannot be straightforwardly reduced to existing constructs such as temporal horizon or the Behavioral Identification Form, leaving both conceptual and empirical space for its assessment. Rather than proposing a new overarching taxonomy, the GAP scale offers a precise operationalization of a theoretically recurrent but previously under-specified dimension. Ultimately, its value will depend not only on its psychometric distinctiveness, but also on its practical utility – particularly in applied contexts such as the design and evaluation of tailored communication interventions.

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Appendix A. Scoring and Computation of the Goal Abstraction Preference (GAP) Scale

Participant instructions

You will be presented with a series of statements. For each, please indicate your level of agreement on a 7-point scale, from “Strongly disagree” to “Strongly agree.”

Some statements may seem repetitive; this is intentional.

Items

Abstractness items (A1–A9)

- A1. I naturally think about my goals in a broad, big-picture way.
- A2. I think about my goals as long-term orientations rather than concrete tasks.
- A3. I usually link my goals to broader aspirations that matter to me.
- A4. I think of goals mainly as guiding principles rather than concrete targets.
- A5. My goals tend to express the general direction I want my life to take.
- A6. When I set a goal, I think first about the general direction it gives to my life.
- A7. I prefer goals that capture a general purpose rather than a specific outcome.
- A8. My goals usually represent broad, overarching aims rather than specific actions.
- A9. I often see individual goals as expressions of deeper values or ambitions.

Concreteness items (C1–C9)

- C1. I find it easier to set goals when they are defined in very concrete terms.
- C2. I usually define my goals in very specific, concrete terms.
- C3. I prefer working with goals that describe clear, specific objectives.
- C4. My goals tend to be about precise outcomes rather than broad purposes.
- C5. For me, a goal needs to be specific and actionable to feel real.
- C6. I tend to define goals as specific achievements rather than overarching directions.
- C7. I typically break down my goals into very concrete steps right from the start.
- C8. My goals usually revolve around clearly defined tasks rather than broad purposes.
- C9. A goal feels meaningful to me only when it refers to something specific I can achieve.

Scoring

All items are rated from 1 (Strongly disagree) to 7 (Strongly agree). Scores are computed as mean (average) ratings. GAP Abstractness: average of items A1 to A9. GAP Concreteness: average of items C1 to C9. GAP Total (general agency score): average of all 18 items (A1–A9 and C1–C9).

Higher Abstractness indicates a stronger preference for purpose-level, big-picture goal representation. Higher Concreteness indicates a stronger preference for action-proximal, specific goal representation. Higher GAP Total reflects stronger overall goal engagement/agency across both levels.