



# Identity

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# Processes and Contents: An Intensive Longitudinal Mixed-Methods Approach for Capturing Everyday Identity Formation

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## ABSTRACT

Understanding identity requires capturing not only how strongly individuals endorse aspects of their identity but also what those mean and how they are expressed in everyday contexts. To address this methodological challenge, we introduce an intensive longitudinal mixed-methods design integrating daily quantifiable and qualifiable identity elements. We illustrate the design within research on civic identity. German adolescents and young adults ( $N = 135$ ;  $M_{\text{age}} = 21.23$  years) completed an online baseline survey and 14 days of daily assessments. Daily surveys included an open-ended narrative prompt for assessing qualifiable elements (e.g., behaviors, contents) and closed items on identity processes to assess quantifiable elements (i.e., commitment, exploration, reconsideration). Open-ended daily narratives were deductive-inductively content coded. Bayesian multilevel models examined within- and between-person associations between daily quantifiable and qualifiable elements. Participants' civic-identity content was heterogeneous and often centered on discussions or conversations and apolitical behavior. On days with higher commitment or exploration, participants were more likely reported identity-relevant experiences as well as more diverse behaviors; reconsideration was unrelated. While the design can be used to examine which contents and behaviors instantiate identity processes in everyday life, it also provides a starting point for redefining domain-specific daily measures by combining qualitative and quantitative assessment.

Consider a young person who engages in political issues on social media, seeks political discussions with friends, and maybe starts volunteering in a nonprofit association. What drives these everyday choices, and how do they shape a lasting sense of identity over time? Answering such questions requires a comprehensive understanding of identity – one that captures not only to what aspects of their life people are committed to, but also how these commitments are shaped, what they mean to them and, as a result, how these commitments are expressed in daily behavior. Identity is widely regarded as a multifaceted and dynamic construct, encompassing various commitments to relevant aspects of one's life (i.e., contents: "What is typical for me?") that guide behavior. Together, identity content, the strength of commitment to that content, and behavioral expression constitute identity, shaping daily dynamics within one's social context and thereby influencing long-term development (van der Gaag et al., 2020).

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Despite broad acknowledgment of this complexity, most research has examined only single identity elements. Quantifiable dimensions such as commitment and exploration (e.g., Crocetti et al., 2008; Luyckx et al., 2006) have been studied extensively, while the quality of these dimensions – the contents of commitments – and their behavioral expressions with their reciprocal everyday dynamics remain underexplored (Branje, 2022). One reason for these gaps may be the methodological challenge of assessing multiple identity elements at an everyday level. In this paper, we address this challenge by introducing an intensive longitudinal mixed-methods design, demonstrating its implementation and analytical opportunities through empirical data on civic identity, with the goal of providing a working example for more integrative identity research.

## Multiple identity elements and their situatedness in daily experiences

Identity can be conceptualized to encompass quantifiable elements, such as the strength of a commitment, which possess a quality being the specific identity content of that commitment (i.e., qualifiable elements; McLean et al., 2016; van der Gaag et al., 2020). Quantifiable elements are those that can be quantified in research and can manifest as cognitive self-reflections (e.g., level of identification) or behavioral expressions (e.g., amount of identity-related behavior; de Ruiter & Gmelin, 2021).

Quantifiable elements are most often studied as intrapsychic processes to address the question of how developing individuals find and maintain identity commitments with the aim to establish a coherent sense of self (Erikson, 1950, 1968). In modern identity formation theories, three or more intrapsychic processes or quantifiable elements are proposed as relevant for this task (Crocetti et al., 2008; Luyckx et al., 2006). Accordingly, the three-factor model distinguishes three possible elements (Crocetti et al., 2008): commitment, in-depth exploration, and reconsideration of commitment. Commitment refers to firm choices regarding relevant contents and the self-confidence derived from these choices. In-depth exploration represents the active search and reflection on current commitments and contents by, for example, talking with others or searching for additional information. Reconsideration of commitment refers to comparing one's present commitments with possible alternatives. These processes have been found to dynamically interact in the short-term (Klimstra et al., 2010) contributing to developmental change in the long-term (Becht et al., 2021). Few studies assessed quantifiable elements as behavioral expressions or examined the link between both manifestations (Branje et al., 2021; Klimstra & Schwab, 2021).

Quantifiable elements always relate to qualifiable elements; that is, specific content. Identity content encompasses all that a person deems important for their sense of self (McLean et al., 2016). This can be idiosyncratic meanings, social roles, or cultural narratives (Galliher et al., 2017) including their valence (Hihara et al., 2021). Qualifiable elements can be categorized into cognitive self-reflections (e.g., beliefs, attitudes) and behavioral expressions (e.g., types of expressions).

Considering quantifiable and qualifiable elements conjointly has been argued to be necessary for a comprehensive understanding of identity formation for two reasons (e.g., Galliher et al., 2017; McLean et al., 2016). First, researchers considering only quantifiable elements of identity might assess identity formation in areas that are not central for the people under study (Galliher et al., 2017). Second, ignoring identity content hinders researchers drawing conclusions for differential developmental trajectories.

Adopting a dynamic systems perspective can help in explaining the link between quantifiable and qualifiable elements, and development (cf. Kaplan & Garner, 2017; Kunnen et al., 2001; van Geert & de Ruiter, 2022). Within this perspective, both quantifiable and qualifiable elements can manifest as transient states or more stable dispositions (Klimstra & Schwab, 2021; Lichtwarck-Aschoff et al., 2008). A state refers to a set of all intraindividual momentary concurrent identity elements that are connected through their interaction (van Geert & de Ruiter, 2022), including other real-time influences (e.g., mood or social context; Kaplan & Garner, 2017; see an empirical example in Klimstra et al., 2016). Importantly, each state gives

rise to the next one; they are iterative. States are characterized by variability and fluctuation, which can oscillate around a stable mean (i.e., no mean-level changes) or shift systematically over time (i.e., mean-level changes).

A disposition is conceptualized as relatively stable interindividual differences in these state processes. In other words, dispositions consist of states that have stabilized into general ways of doing, thinking, and feeling (van Geert & de Ruiter, 2022). They can be composed of (relatively) stable (1) average levels of, (2) associations among, or (3) variations in quantifiable elements or common qualifiable elements (cf. Geukes et al., 2018). Notably, dispositions exert a top-down influence on state processes by constraining the range of possible states.

To be less abstract about states, dispositions, and their interrelation, we could consider an adolescent who is moderately committed to a certain moral value, such as loyalty. If we observe them in a political or moral discussion with relevant others, such as friends, we might find fluctuations in their commitment, either by varying levels of commitment or reconsideration, or by slight changes in the content. These situational fluctuations are *states*. If we ask the person at the beginning and end of the month to indicate their commitment or what their moral value means to them, we might find no change, despite what we observed in the everyday interaction. This would be called a *disposition*. Eventually, if identity-relevant experiences accumulate and the person increasingly reconsiders their initial moral value, we might observe changes in the disposition as well. However, the adolescent might be more likely to seek out political or moral discussions with people that share their moral value instead of opposing it due to their disposition (i.e., constraining possible states).

For understanding the different developmental effects of experiences, researchers must consider qualifiable elements. Identity development is characterized by the process of incorporating identity-relevant experiences into the identity system (van der Gaag et al., 2020). For an experience to be identity-relevant, it needs to be connected to a qualifiable element. Put simply, only when “educating students to become democratic citizens” is part of a teacher’s identity system can the experience of teaching students activate that content and, in turn, all connected identity elements and lead to change.

The direction of change is dependent on whether the experience is identity congruent or identity incongruent (Bosma & Kunnen, 2001). Congruent experiences are in line with existing qualifiable elements, such as volunteering in charity organizations, if one includes “helping others is the right thing to do” in one’s identity system. Congruent experiences stabilize the identity system (e.g., by strengthening commitment). Incongruent experiences are novel or at odds with existing qualifiable elements. Connecting to the previous example, this could include being scolded by the person who received help for having helped them. Individuals can deal with incongruent experiences through accommodation or assimilation (Bosma & Kunnen, 2001). If an experience is accommodated, it changes the identity system (e.g., changing content, or weakening commitment). If an experience is assimilated, the perception of the experience is changed or it is ignored altogether, relating to no change in the identity system. Assimilation is more likely if the identity system is more stable, as, for example, expressed by high commitment or if the experience is not too incongruent with qualifiable elements.

While an increasing body of research focuses on the interplay of quantifiable and qualifiable elements in the long term (i.e., across years; see Skhirtladze et al., 2022; van Doeselaar et al., 2020), shorter timescales remain understudied. A reason for this gap may be the methodological challenge of assessing quantifiable and qualifiable elements and their interplay at an everyday level. Nevertheless, researchers need to consider developmental mechanisms at different time scales to fully capture identity formation.

## **An illustrative example of an intensive longitudinal mixed-methods design focusing on civic identity**

Addressing the call to examine quantifiable and qualifiable identity elements and their dynamic interplay together, we introduce a study design that combines a mixed-methods approach within an intensive longitudinal study. We demonstrate its implementation through empirical data on civic identity. Further, we showcase analytical strategies for two exemplary research questions with empirical data from a project on the mobilizing effects of electoral periods on civic identity development.

### ***Qualitative research question***

As mentioned above, qualifiable elements can include idiosyncratic meanings, social roles, or cultural narratives (Galliher et al., 2017) and can manifest in different behaviors and cognitive expressions. Although this implies a wide variety of identity-relevant contents and expressions, previous research on civic identity has often been limited to conceptualizing it in line with citizenship or citizen-based rights (Bellamy, 2008; Petrovska et al., 2020), manifesting in civic or political behavior and attitudes (e.g., Han & Dawson, 2025). In this study, we forefront daily self-reported behavior and experiences as indicators of qualifiable elements, guided by the research question (1): Which behaviors and experiences do youth mention to be relevant for their daily civic identity?

### ***Quantitative research questions***

On a daily level, the dynamic interplay between qualifiable and quantifiable elements can be seen as formative for identity development (van der Gaag et al., 2020). As such, examining dynamics between those elements can contribute to explaining how states vary and, at some point, change dispositions. Hence, we were interested in how quantifiable elements are interrelated with qualifiable elements – in our case identity-related behaviors and experiences (research question 2).

We assumed that identity-relevant experiences would coincide with feelings of commitment and exploration, or reconsideration, depending on whether the experience is identity congruent or incongruent (i.e., experiences that are reported to be or not to be in line with existing contents by participants, see Bosma & Kunnen, 2001). Overall, the likelihood of encountering any identity-relevant behavior or experience should be positively associated with each of the quantifiable elements on a given day (i.e., identity-relevant experiences trigger quantifiable elements, or the latter promote identity-relevant experiences). Additionally, we would expect quantifiable elements to be positively associated with the number of different behaviors and experiences. An active commitment should constrain thoughts and actions to be in line with it (i.e., top-down influence, van der Gaag et al., 2020). Thus, if the commitment is active, a diverse range of situations might be experienced as identity-relevant. If individuals explore, they might actively search for identity-relevant experiences, thereby contributing to finding more diverse experiences on a day. As reconsideration signifies the comparison of one's current commitments to alternative ones (Crocetti et al., 2008), it can contribute to searching for identity-relevant experiences, thereby also contributing to finding more diverse experiences on a day. Lastly, commitment should be more strongly associated with identity-congruent behaviors and experiences, while reconsideration should be more strongly associated with identity-incongruent behaviors and experiences (Bosma & Kunnen, 2001). The associations between exploration and qualifiable elements are likely similar in both cases because exploration is necessary for maintaining as well as revising a commitment (Crocetti et al., 2008).

To test these assumptions, we examined four hypotheses, two of which pertain to intra-individual associations (H1 and H2), and two pertaining to inter-individual associations (H3 and H4). The

empirical analysis of this study was preregistered on OSF (<https://osf.io/qx2nf>).<sup>1</sup> Deviations from the preregistration are mentioned in the supplemental material.

### ***Within-level hypotheses***

**H1:** On days where participants report identity-relevant behaviors or experiences, they also report higher levels of commitment, exploration, or reconsideration.

**H2:** On days where participants report more varied behaviors or experiences (i.e., diversity) than usual, they also report higher levels of commitment, exploration, or reconsideration.

### ***Between-level hypotheses***

**H3:** Across days, participants with a higher overall likelihood of reporting identity-relevant behaviors and experiences show higher average levels of commitment, exploration, or reconsideration.

**H4:** Across days, participants who, on average, mention more different identity-relevant behaviors and experiences show higher average levels of commitment, exploration, or reconsideration.

### ***Procedure and participants***

We employed various strategies to recruit participants. These included (1) the distribution of flyers to participants in vocational schools, (2) in university buildings and public places, (3) advertisement through e-mail lists at the authors' universities, and (4) personal contacts (i.e., distribution through teachers and lecturers). If individuals were interested, they could download *Avicenna*, an app for collecting intensive longitudinal data, and register anonymously. Participants could access the study via their smartphones or any device that could access the internet. Data were collected during January to March 2025 in Germany. This period covered German national elections (end of February), coinciding with electoral campaigning and heightened media reports on national-political topics.

The sample comprised 135 German adolescents and young adults. Participants were on average 21.23 years old ( $SD = 2.04$ ) and 66.4% were female (27.3% were male, 1.2% nonbinary, 5.1% missing). Most participants were currently enrolled in university (77.2%), followed by vocational schools (14.6%). Participants' parents had mostly non-academic backgrounds (60.7% versus 39.3% with at least one parent having a university degree). Most were born in Germany and had parents born in Germany (77.0%, ethnic majority) or had German citizenship (87.4%), 10.4% were second-generation immigrants, and 6.7% first-generation immigrants (5.9% missing). Little's (1988) Missing Completely at Random (MCAR) test was not significant ( $\chi^2(11) = 5.67$ ,  $p = .895$ ), indicating that data were likely missing completely at random. Thus, missing data were estimated by a Kalman filter approach, as implemented per default in *Mplus* (see Hamaker & Grasman, 2012).

### ***Study design***

The study encompassed one baseline survey followed by 14 daily assessments. All participants were provided with information on the study prior to the baseline survey and had to give active consent for participation. The baseline survey was carried out to measure dispositional civic identity aspects and their predictors (~10–15 min). More information on the baseline survey can be retrieved from the project's OSF page (<https://osf.io/zpnx8>). Daily surveys were implemented to measure varying civic identity states (~1–5 min). The daily survey period started 1 day after completing the baseline survey. During the daily survey period, we sent participants daily push-notifications as reminders to participate. The reminders were sent out after school or work hours (5 p.m.) followed by up to two additional

reminders at 6 p.m. and 7 p.m., when needed. Even though the final reminder was sent at 7 p.m., participants could answer until midnight every day to allow for individual flexibility.

### ***Frequency of assessment***

The successful implementation of daily surveys is largely dependent on participants' compliance (Wrzus & Neubauer, 2023), with assessment frequency being an important influencing factor. Too long or too frequent assessments can have detrimental effects on compliance (Vachon et al., 2019). As such, before devising a study design, researchers should ask themselves (1) how many measurement points (days  $\times$  sample size) are necessary for sufficient power, and (2) which assessment frequency is appropriate for the phenomenon of interest. Regarding power, there is no general rule of thumb. Nevertheless, simulation studies suggest that for most research questions interested in within-level effects a sample size of 120 participants and 9 observations should lead to converging model estimation (Bolger et al., 2012; see also Hasselhorn et al., 2022; Wrzus & Neubauer, 2023). Regarding the appropriateness for the phenomenon of interest (i.e., civic identity), 14 days seemed plausible, because this frequency has already been successfully implemented for other identity domains to capture meaningful fluctuations (Becht et al., 2016; Mayer et al., 2026), and research on civic development suggests increased changes in politicized times, such as during electoral campaigns as was the case in our study (Eckstein et al., 2024; Valentino & Sears, 1998). Nevertheless, adolescents should hardly be confronted with identity-relevant experiences at every moment during their day. As such, we decided that one assessment per day should allow for a valid assessment of civic identity formation in politicized times and provide enough variation in quantifiable and qualifiable elements to calculate multilevel models. Please note that during non-politicized times or for other identity domains, the optimal assessment frequency may differ, and researchers will need prior theorizing for these instances.

### ***Compensation***

Another relevant factor for the successful implementation is participant compensation (see Wrzus & Neubauer, 2023). Hence, we compensated all participants with 10€ for the baseline survey and 1€ per daily survey if they completed a minimum of 10 days (totaling 24€ if all surveys were completed). This form of financial compensation is frequently used in intensive longitudinal studies (see Wrzus & Neubauer, 2023) and has been approved by the ethics committee of the Catholic University of Eichstätt-Ingolstadt.

### ***Mixed-methods measures***

#### ***Daily qualifiable elements***

Daily surveys included open-ended prompts that assessed participants' identity-related behaviors and experiences as well as qualitative content. These were assessed conjointly and later separated during analysis via content coding. We used the following open-ended prompt adapted from Wong et al. (2022).

Take a minute to reflect your day. Think of a moment when you felt like an active part of society (e.g., being interested in political or social issues, talking about them with acquaintances, or during your volunteer work). Please tell us what happened in that moment – who were you with, what kind of environment where you in when you felt that way? Are there any other details you would like to share? Also, feel free to tell us if there was no such moment.

Participants could answer via voice ( $n = 81$ ) or text message ( $n = 996$ ). Giving both options allowed participants to answer in the format they felt most comfortable with, which likely contributed to relatively low rates of missingness on the open-ended prompt (daily missing: 1.4%).

### Daily quantifiable elements

We repeatedly assessed participants' daily civic identity with adapted items from the U-MICS daily diary scale (Becht et al., 2016). The scale included one item for each identity process: commitment ("Today, I felt like an active member of society"), in-depth exploration ("Today, I thought about what it means to be an active part of society"), and reconsideration ("Today, I felt uncertain about my role as an active member of society"). All items were scored on a 5-point Likert scale (1 = *do not agree at all*, 5 = *fully agree*).

### Dispositional quantifiable elements

To validate our daily quantifiable measure and to control baseline differences, we assessed dispositional quantifiable elements with the Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008) adapted for civic identity. The scale included 12 items: five for commitment (e.g., "I feel connected to people who contribute to society";  $\omega = .87$ ), three for in-depth exploration (e.g., "I often think about what it means to be an active member of society,"  $\omega = .71$ ), and three for reconsideration of commitment (e.g., "I often think it would be better to not be an active member of society (anymore),"  $\omega = .59$ ).<sup>2</sup> All items were scored on a 5-point Likert scale (1 = *do not agree at all*, 5 = *fully agree*).

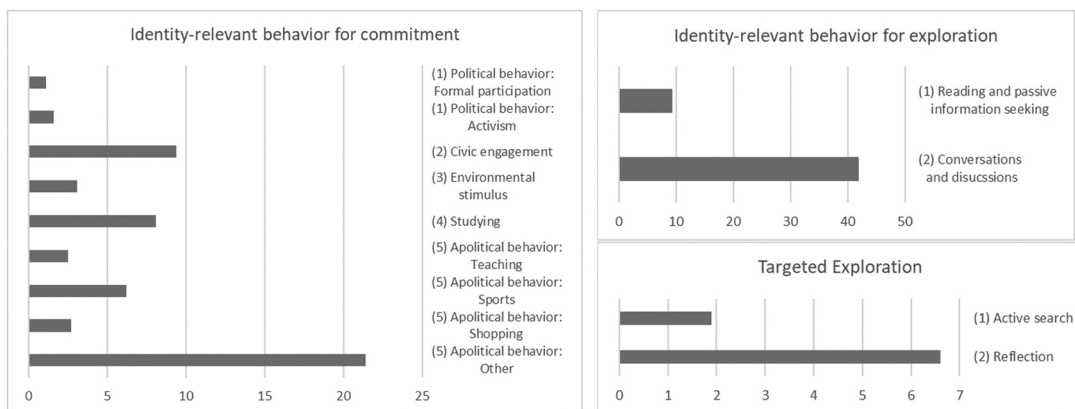
## Analyses, results, and interpretation

The following section presents the analytical strategies and results separately for each research question, along with their implications for research on civic identity. The overall discussion then addresses the generalized methodological opportunities and challenges associated with the study design.

### Qualitative analysis: a content analytical approach

To address the first research question, all open-ended answers were content coded. We started deductively with four pre-formed codes (i.e., (1) *identity-relevant contexts*, (2) *interactions*, (3) *expressive behavior*, (4) *exploration*) that were inductively updated according to participants' answers (Fereday & Muir-Cochrane, 2006). The pre-formed codes were extended by separating (3) *expressive behavior* in *identity-relevant behavior for commitment* and *identity-relevant behavior for exploration*. Furthermore, we added descriptive codes, such as *emotional evaluation*, *topics of discussion* or *information*, and *reasons for (in-)activity*. Lastly, we coded the *level of identity* to differentiate more personal versus social aspects of civic identity (see Table S3 in the supplement for an overview of all codes).

The coding consisted of three steps. First, the first author and two female student research assistants coded 539 (out of 1,473, 36.6%) answers together. In this initial phase, all coders met after approximately 100 codes and discussed coding results. Diverging results were discussed, and necessary revisions were made to the codebook. Second, the remaining answers were split, and the two student assistants coded each half separately (each 467 answers). During this time, coders only met when uncertainty arose. Third, to calculate interrater reliability, we randomly drew 150 codes from each separately coded half, which were then cross coded (300 cross coded codes). Interrater reliability was calculated in RStudio using the *psych* package (Revelle, 2026). It was mostly sufficient ( $\kappa > .61$ ; Landis & Koch, 1977), except for *private reasons for (in-)activity* ( $\kappa = .55$ , 4.4% of mentioned codes). If a person stated that they did not feel committed to their civic identity today, we excluded the row with all other coded information from further analysis ( $n = 370$ ). Codes were separated into behavioral ( $n = 9$ ; i.e., participants reported activities and behavior) and non-behavioral ( $n = 21$ , i.e., participants reported a social context, interaction partner, or descriptives of an activity or behavior) in preparation for the second research question. The full coding manual and frequencies of all codes can be found in the supplemental material (Table S3).



**Figure 1.** Bar charts depict the frequencies (in %) of subcodes for each code. Frequencies were calculated in relation to all days and individuals.

Additionally, we checked for modality-specific codes (text- versus voice-message) to test whether treating data from voice- and text-message as equal data points in content coding is valid (see Table S8 in the supplemental material). No code frequency was significantly associated with a modality on the within-level, meaning that codes are equally likely reported across days regardless of modality. Multilevel correlations and frequencies of codes were calculated in RStudio using the *misty* package (Yanagida, 2020).

### Qualitative results: contents of civic identity

Participants reported a variety of *social contexts* (included in 59.3% of answers), *interaction partners* (53.6%), behaviors, and experiences that they perceived as relevant for their civic identity. Behaviors and experiences consisted of *identity-relevant behavior for commitment* (50.5%), *identity-relevant behavior for exploration* (51.2%), and *targeted exploration* (6.7%). Some behaviors and experiences were described with an *emotional value* (8.3%), a *topic* was specified (53.8%), or referred to a personal *sense of belonging* (14.9%) or a *sense of connectedness* (3.9%) with others (see Figure 1 and Figure S1 in the supplemental material). Around 4.5% of the codes included *reasons for activity or inactivity*.

Behaviors or experiences were labeled as *identity-relevant behavior for commitment* when they corresponded to behaviors and experiences that were mentioned to accompany a sense of commitment (e.g., “Today, my girlfriend and I placed flowers and a grave candle at a Stolperstein [Holocaust memorial stone],” 111,449, January 27, 2025). This code included five subcodes: (1) *political behavior* (2.7%, i.e., either *formal participation* or *activism*), (2) *civic engagement* (9.4%, i.e., voluntary work, helping others), (3) *environmental stimulus* (3.1%, i.e., circumstances that simply happened to the participants), (4) *studying* (8.1%, i.e., theoretical and practical learning in school or university), and (5) *apolitical behavior* (32.9%, i.e., such as *teaching*, doing *sports*, going *shopping*, or *other* more idiosyncratic activities). If the behavior implied some level of exploration without much in-depth exploration or agency, we coded it as *identity-relevant behavior for exploration* (e.g., “I saw videos about how people should not vote for the AfD [far right-wing party in Germany],” 111,414, January 23, 2025). This code included two subcodes: (1) *reading and passive information seeking* (i.e., seeing information by chance or unintentional news consumption; 9.3%) and (2) *conversations and discussions* with others (41.9%). *Targeted exploration* only encompassed those behaviors that were actively sought or explicitly triggered longer cognitive engagement (e.g., “I saw and analyzed a political campaign poster,” 111,429, January 22, 2025). It consisted of two subcodes: (1) *active search* (1.9%, i.e., the active search for relevant experiences) and (2) *reflection* (4.8%, i.e., actively engaging with the topic).

## Interpretation of the qualitative results

Adolescents and young adults reported a wide range of experiences and behaviors that they linked to their everyday civic identity. Their responses suggested that *identity-relevant behavior for exploration* – mainly *conversations and discussions* with others – and *apolitical behavior* were particularly salient. The findings indicate that young people may show substantial interest in civic and political issues even when they do not engage in more overt civic or political behaviors. This pattern is consistent with prior work in civic engagement research (Kehl et al., 2026).

Moreover, the variety of experiences and behaviors implies that previous conceptions of relevant civic identity expressions might be too narrow. After all, a large share of adolescents and young adults mentioned *studying* (8.1%) and *apolitical behavior* (32.9%), such as *shopping* or doing *sports*, as behaviors in which they felt like an active part of society. While these findings might be unexpected, they highlight the added value of open assessments to capture civic identity as it is lived and narrated by participants (McLean et al., 2016). An explanation for the relevance of these codes might be (1) the developmental stage most participants were in (i.e., finishing school or tertiary education) and (2) that the simple possibility to study together or engage with others is already experienced as a relevant foundation for becoming an active part of society. To strengthen this interpretation, future studies should test different phrasings of the narrative prompt to exclude misunderstandings and to explore further identity contents from a youth perspective that have not been mentioned in literature yet.

The qualitative results come with an implication for the following quantitative analysis. Specifically, since only a few participants explicitly mentioned whether their experiences and behaviors were identity congruent or incongruent (i.e., emotional valence was positive:  $n = 56$ , 5.2% or negative:  $n = 33$ , 3.1%), we decided not to examine differential effects of identity congruent or incongruent experiences. For exploratory analysis, we conducted multilevel correlations between quantifiable elements and *emotional valence* to examine different activation of quantifiable elements depending on congruency (see supplemental material).

## Quantitative analysis: multilevel models

### Additional computed variables

We computed two additional variables based on the nine behavioral codes from the content analysis: (1) likelihood of mentioning identity-relevant behaviors and experiences, and (2) diversity of identity-relevant behaviors and experiences. Regarding the first variable, if a participant mentioned any behavior or experience (at least one of the nine behavioral codes) on a certain day, we assigned likelihood = 1 for that day (80.7% of days across participants). If no behavior or experience was mentioned on a certain day, we assigned likelihood = 0 for that day (19.3% of days across participants). Regarding the second variable, we calculated the sum of all different behavioral codes that have been mentioned per day per person ( $M = 1.1$ ,  $SD = 0.7$ ). This means that if one behavioral code was present, the person received a 1 for that day. If two different behavioral codes were present, the person received a 2 for that day, and so on.

### Statistical approach

To address the second research question, we conducted multilevel regression models in *Mplus* 8.9 (Muthén & Muthén, 1998–2017) separately for two outcomes: (1) likelihood of mentioning identity-relevant behaviors and experiences and (2) diversity of identity-relevant behaviors and experiences. These were predicted by either only state civic identity commitment, exploration, and reconsideration (3 predictors per level), or state and dispositional civic identity commitment, exploration, and reconsideration (3 within-level predictors, 6 between-level predictors). This approach allows accounting for the nested data structure with daily assessments on Level 1 nested within adolescents on Level 2. Models included only same-day effects. Predictors were modeled as correlated on Level 2. We ran four models per outcome. We began a model assuming fixed effects with only state measures (models

1a & 1b), then included dispositional measures next to state measures of civic identity for validation purposes and to account for dispositional differences at baseline (models 2a & 2b). Fixed effects models were followed by models that included random effects for the regression slope with only state items (models 3a & 3b), and models that included a random slope with dispositional items (models 4a & 4b). Including random slopes means that effect sizes can vary across participants; that is, adolescents can vary in the strength and direction of the assumed association.

We estimated all models using the Bayesian estimator in *Mplus* with two Markov Chain Monte Carlo (MCMC) chains and a burn-in period of 50%. We started with 2.000 iterations, keeping only every 5<sup>th</sup> iteration (thinning factor = 5), and increased iterations to 4.000 for reporting the model results and checking for stability. If the model did not successfully converge, we gradually increased the number of iterations. Convergence was inspected by using the Potential Scale Reduction Factor (<1.1) and by inspecting Bayesian parameter trace plots and autocorrelation plots. Parameters whose 95% credible interval did not cover zero were interpreted as significantly different from zero. *Mplus* syntaxes of our models can be found on the OSF project page (<https://osf.io/zpnx8>). In this manuscript, we report the results of the most complex still converging model and unstandardized effect sizes. All other models and standardized effect sizes can be found in the supplemental material.

### **Quantitative results: same day associations of quantifiable and qualifiable elements**

The most complex still converging model was the random intercept fixed slope model including the dispositional civic identity items on the between-level (model 2 a & b). Regarding the within-level, civic identity commitment ( $b = 0.48$ , 95% CI [0.33, 0.62]) and civic identity exploration ( $b = 0.48$ , 95% CI [0.32, 0.64]) were significantly associated with the likelihood to experience identity-relevant situations or express identity-relevant behavior. Further, civic identity commitment ( $b = 0.24$ , 95% CI [0.15, 0.32]) and civic identity exploration ( $b = 0.33$ , 95% CI [0.24, 0.42]) were significantly associated with diversity of experienced identity-relevant situations or shown behavior. This indicates that on days with higher than usual commitment or exploration, participants experienced more likely identity-relevant situations or have shown more identity-relevant behavior than usual, and it was more diverse than usual. Civic identity reconsideration was not associated with any outcome on the within-level.

Regarding the between-level, no quantifiable element was associated with the likelihood to experience or express identity-relevant behavior. Yet, both state ( $b = 0.72$ , 95% CI [0.12, 1.34]) and dispositional civic identity exploration ( $b = 0.71$ , 95% CI [0.12, 1.33]) were positively associated with the diversity of experiences. This means that participants with higher levels of exploration reported generally more diverse identity-relevant experiences compared to participants with lower levels of exploration.

### **Exploratory analysis**

Multilevel correlations between quantifiable elements and *emotional valence* revealed no significant associations. Interestingly, results point into the direction that positive emotions – indicating identity-congruent behaviors and experiences – are positively associated with commitment and exploration, while negative emotions – indicating identity-incongruent behaviors and experiences – are positively related to reconsideration. Future studies could aim for an increased sample size to test these associations with more statistical power than we had with sample sizes of  $n = 88$  days and  $n = 55$  participants.

### **Interpretation of the quantitative results**

Results were partially in line with our expectations for the within-level (H1, H2) but did mostly not align for the between-level (H3, H4). As expected, on the daily level, stronger commitment and higher

exploration were positively related to both (a) the likelihood of encountering or seeking identity-relevant experiences and (b) the diversity of reported experiences. An interpretation is that stronger commitments might increase the probability that meaningful components of the identity are expressed in daily life (i.e., behavior that is connected to an identity with a strong commitment is more likely shown; van der Gaag et al., 2020). In addition, the findings underscore the particular role of exploration in actively searching for the meaning of commitments, consistent with research following identity status theory (Crocetti et al., 2008; Marcia, 1966). However, to distinguish effects of mere exposure from active exploration, future research should compare their relative contributions to longer-term developmental changes (e.g., with longitudinal surveys).

Unexpectedly, on the daily level, we did not find any association between reconsideration and any qualifiable element. This might be caused by the phrasing of the daily prompt. After all, we asked participants to report situations when *they felt committed* to their civic identity, which might already exclude situations in which they reconsider their civic identity. This explanation is strengthened by the fact that no code emerged that would cover *identity-relevant behavior and experiences for reconsideration*.

By extension, the prompt might have had a mobilizing effect on identity-relevant behavior for all participants. By repeatedly asking participants to think back at a situation in which they felt committed, it might be that civic identity became more salient than it would have been usually. As such, between-person differences depending on dispositional elements might have been attenuated. Only dispositional exploration was significantly associated with diversity of experiences and behaviors, highlighting its role as a catalyst for identity development (van der Gaag et al., 2020). Lastly, the prompt elicited evaluations of the reported behavior or experience as identity congruent or incongruent only in a few cases. We suggest including rating items for days on which behaviors and experiences are mentioned in future studies. By doing so, participants would have to evaluate their behaviors and experiences, allowing for differential analysis depending on congruency.

## Discussion

Examining identity and its formation as a complex and dynamic process remains a central challenge for identity research. In this article, we presented an intensive longitudinal mixed-methods approach and illustrated its potential using an empirical example on civic identity. Building on this example, we briefly summarize the key contributions and conclude with a discussion of the design's limitations and possible extensions.

### Contribution of the illustrative example

Some readers might wonder: Is the mass of descriptive results and extra coding work really worth the effort? We would clearly answer: Yes! The central strength of including open-ended prompts in intensive longitudinal surveys is that it allows one to contextualize quantifiable elements. Specifically, on the one hand, quantifiable elements are contextualized in a sense that researchers can reconstruct specific identity-relevant experiences that contribute, for example, to fluctuations in commitment or reconsideration. On the other hand, changes in quantifiable elements can be connected to changes in content, thereby addressing the question of *what* actually is changing.

Moreover, by combining qualifiable and quantifiable elements, researchers could identify possible starting points for identity interventions. In the case of civic identity, researchers could aim to identify experiences that prompt apolitical youth to explore pro-democratic political content. Another question might focus on which experiences trigger reconsideration of anti-democratic political content in youth with consolidated anti-democratic civic identities. The design can be of similarly informative value for other identity domains. For example, adolescents with narrowly ethnically defined national identities could be encouraged to engage in supervised intercultural exchange programs, such as

school mobility programs. Or the design could be used to identify everyday experiences that contribute to positive or negative developmental trajectories of identity.

Additionally, the intensive longitudinal design further enables questions concerning day-to-day carry-over of qualifiable and quantifiable elements (i.e., autoregressive effects) and their dynamic couplings (i.e., lagged effects; do the effects of yesterday's experience linger?). It could also be used to address questions regarding emerging stability (Moeller et al., 2022): What is the timeline for identity processes to consolidate, and to what extent do experiences and/or exploration contribute to consolidation (van der Gaag et al., 2020)? By extension, researchers could examine stability in relation to dispositional identity components (e.g., do adolescents high on dispositional exploration and low on dispositional commitment show higher levels of intraindividual fluctuations in their daily exploration?). For this purpose, we would expect longer observation periods to be necessary. However, studies that systematically examine the timing of developmental processes are still scarce.

Another strength of the design is that it allows for assessing how youth live and narrate their identities (Gallagher et al., 2017). In our example, the variety of experiences and behaviors mentioned by our participants transcended common conceptions of civic identity (Bellamy, 2008; Petrovska et al., 2020) and would have been overlooked if we had only relied on pre-defined rating scales. A similar point – that individual content transcends common conceptions – can be made for other identity domains.

By considering contents that are relevant for participants, researchers can reconstruct formative challenges and underlying group- or culture-specific narratives. Notably, researchers interested in those narratives need to code their answers with that aim in mind. As we were only interested in behavioral expressions, we did not code norms, beliefs, and so on. Further, based on our experience, it might be beneficial to more explicitly prompt participants to use voice instead of text messages, as the former provided on average more detailed answers.

### **Limitations and opportunities**

The insights from the illustrative example point to several methodological extensions as well as limitations of the current design. It includes one baseline survey for dispositional identity and 14 daily surveys for state identity. Thus, researchers cannot examine the interrelation between state fluctuations and long-term change. For this aim, a second dispositional survey was needed. Researchers interested in the interplay of state processes and dispositions could consider repeated annual assessments that are complemented by weeks of daily questionnaires in each of these years (see, for example, Becht et al., 2021).

Another limitation is the wording of the narrative prompt. The prompt was devised together with the target population and completed by theoretical considerations. Nevertheless, the prompt is not optimally designed for examining associations between reconsideration and daily qualifiable elements, as we asked in the prompt for moments in which *they felt like an active part of society*. Thus, participants might have been more likely to recall identity congruent than incongruent experiences. Future studies could administer the prompt only on days when participants feel at least moderately connected to their civic identity. On other days, an alternative prompt could invite participants to reflect on the day more generally or, if participants have at least moderate levels of reconsideration, elicit identity-incongruent experiences. This approach may help distinguish experiences and behaviors that co-occur with a feeling of commitment from those that co-occur with reconsideration.

By extension, the responses to our narrative prompt were short on average (average codes mentioned per day:  $M_{\text{text}} = 1.04$  ( $SD = 0.71$ ),  $M_{\text{voice}} = 1.31$  ( $SD = 0.74$ )). While length may not be an issue for research questions focusing on manifest content, it might limit the possibility for qualitative analyses interested in latent or implied content due to limited contextual information (i.e., one-word answers provide little context). Researchers interested in the latter will need to consider possibilities to elicit more detailed responses, for example, by more motivating prompts or an adaptive incentive structure. Moreover, while text- and voice-message could both be equally included in our content analysis,

future studies need to test modality specific codes to ensure the validity of treating different modalities as identical data points in content analysis. Generally, we can recommend devising the prompt together with the target population or including pretests with feedback, and allowing participants to choose their preferred modality to respond. By doing so, researchers can more validly devise a prompt that captures what is intended and elicit detailed answers from participants with little missing responses.

The absence of between-level effects might have been connected to the daily presentation of the narrative prompt. Unintentionally, we might have promoted exploratory behavior in adolescents, thereby attenuating preexisting differences in the frequency of behavior. Future studies should include a control group to control for unintended mobilizing effects.

A more general limitation of the design is that it is labor- and cost-intensive. Preparing and analyzing qualitative responses is time-consuming, and maintaining the sample over repeated assessments requires substantial effort (e.g., periodic feedback or encouragement). We argued that the benefits of qualitative content coding might be worth the effort. Further, AI assisted content coding might significantly decrease the necessary labor (Poulos et al., 2026). Regarding compliance, while it is a major challenge, researchers can address this challenge by gamification (e.g., Bülow et al., 2025) or monetary incentives (Wrzus & Neubauer, 2023).

For this methodological paper, we illustrated the study design with results on civic identity. The proposed design can be implemented for other identity domains or identity development more generally, although adaptations will likely be needed (e.g., changing the wording of the prompt, altering assessment frequency). Following a dynamic system perspective on identity (Kaplan & Garner, 2017), we expect similar developmental mechanisms across identity domains; this assumption is strengthened by preliminary analysis from data of the current study, in which we found that the design can be used for European identity. We encourage researchers to consider mixed-methods intensive longitudinal studies for their identity domain of interest, thereby helping to uncover how identity is enacted in everyday interactions and how these contribute to identity formation in the long term (Galliher et al., 2017; van der Gaag et al., 2020).

## Conclusion

In this paper, we introduced an intensive longitudinal mixed-methods design illustrated with data on civic identity. It contributes to the ongoing methodological discussions on the assessment of identity as a complex and dynamic construct. The design offers the possibility to integrate identity process and identity content to capture lived identity. The design can be used to examine which contents and behaviors instantiate an identity in everyday life – and could also be used as a starting point for redefining domain-specific daily measures.

## Notes

1. Notably, we did not preregister hypotheses including the congruency of behaviors and experiences. This was done because congruency was assessed by coding participants' open answers. Hence, if participants do not, or only a few, describe their behaviors and experiences as identity congruent, we cannot examine associations for identity-congruent or identity-incongruent behaviors and experiences separately.
2. Dropping one item would decrease reliability.

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## Data availability statement

Quantitative data and material is available on the project's OSF page <https://osf.io/zpnx8>.

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