Current Psychology
https://doi.org/10.1007/s12144-025-07601-9

Exploring time appropriation: development and validation of the time appropriation scale

Mehmet Karasu[1] · **Sevim Cesur**[2] · **Yılmaz Orhun Gürlük**[3]

Accepted: 18 February 2025
© The Author(s) 2025

Abstract

Appropriation involves rendering foreign and uncontrollable elements familiar and meaningful. This study introduces the novel concept of time appropriation, defined as transforming uncontrollable temporal segments into personally meaningful experiences and allocation of that temporal segment to oneself. We investigate this concept through three distinct studies. In Study 1, a qualitative study involving 15 participants, we used in-depth interviews to explore the intricacies and dimensions of time appropriation, identifying themes that emerged from participants' descriptions via template analysis. Template analysis enables the identification of recurring patterns within and across participants, providing a flexible yet structured approach. Studies 2 and 3, with 371 and 988 participants respectively, focus on developing and validating a measurement tool for this concept, by survey methods to collect quantitative data ensuring statistical reliability and validity. Qualitative findings from Study 1 reveal that time appropriation encompasses dimensions such as identification, meaning, emotion, ownership, transformativeness, sociability, and the physical environment. Participants strongly identify with and find unique meanings in their appropriated time, generally experiencing positive emotions. However, emotional experiences varied among participants; while many reported positive emotions like satisfaction and contentment, a few described more complex feelings, suggesting that the emotional impact of time appropriation may not be uniformly positive but rather context dependent. Our participants exhibit high ownership and control, using these periods for psychological renewal and transformation within specific social and physical environments characterized by comfort and strong bonds. Quantitative results from Studies 2 and 3 demonstrate the successful development of the time appropriation scale, which includes key dimensions such as self-discipline, spontaneity, and inwardness. To ensure the scale's reliability and validity, we applied factor analysis to identify the underlying structure and utilized Cronbach's alpha and McDonald's omega to establish internal consistency. Self-regulation, the satisfaction with life scale, Turkish subjective happiness scale, authenticity scale, and the meaning in life questionnaire were used in validity studies. The scale exhibits robust psychometric properties, confirming its validity and reliability. This research highlights the distinctiveness of time appropriation compared to other time-related concepts in the literature, such as time work, leisure, and time perspective. While the findings underscore the utility of the time appropriation scale, some limitations, such as the use of snowball sampling techniques as well as criterion sampling in the first study, the reliance on self-reported data in the second and third studies and the need to examine diverse cultural contexts should also be addressed. We discuss the theoretical implications, psychometric properties, and potential applications of the time appropriation scale.

Keywords Time appropriation · Relationship with time · Template analysis · Scale development

✉ Mehmet Karasu
karasumehmet@yyu.edu.tr

Sevim Cesur
cesur@istanbul.edu.tr

Yılmaz Orhun Gürlük
yilmazorhungurluk@gmail.com

[1] Department of Psychology, Van Yüzüncü Yıl University, Van, Türkiye

[2] Department of Psychology, İstanbul University, Istanbul, Türkiye

[3] Independent Researcher, Izmir, Türkiye

Published online: 28 February 2025

Introduction

In today's fast-paced, productivity-oriented societies, where every moment feels like a transaction, the ability to carve out time and make it meaningful is both a rare privilege and a psychological necessity. Considering the pressures of digital connectivity, where the boundaries between personal and professional life blur, and how individuals increasingly crave moments when they can feel truly themselves, this underscores why understanding the mechanisms of time appropriation is not only theoretically intriguing but also crucial for addressing contemporary challenges of well-being and identity in modern life.

Humans are intrinsically linked to themselves, others, nature, space, and time. Of these connections, the relationship individuals have with time is particularly complex. In this context, time is not merely a neutral continuum, but a subjective experience shaped by cultural, social, and psychological forces. These forces influence how individuals perceive, interact with, and ultimately assign meaning to time, highlighting the multifaceted nature of temporal experiences. Social science research has traditionally focused on aspects such as leisure and time use (Kimmel, 2008; Rolandsen, 2011), while psychology has concentrated on time perception and time perspective (Mello & Worrell, 2014; Wittmann & Paulus, 2008). However, individuals' relationships with time may encompass other dimensions as well. One such dimension, which we propose and name as "time appropriation," involves the psychological process through which individuals make segments of time their own. This process reflects not only an individual's sense of personal agency, but also their response to wider societal pressures, where time is often perceived as something external and controlled by external demands. Through the act of time appropriation, individuals can regain a sense of ownership over their temporal experiences, transforming these moments into opportunities for meaning and self-expression. This study investigates the dimensions and processes of time appropriation using both qualitative and quantitative methods. The following sections will examine this concept in detail and summarize its relationships with related concepts in the literature.

Appropriation, defined as "the act or process of taking something as one's own or making something one's own" (Graumann, 1976, p. 113), involves rendering foreign and uncontrollable elements familiar and meaningful. Time appropriation, an unexplored concept in the literature, is defined in this study as the process of psychologically making a part of time one's own through a person's engagement with this part of time and making this time meaningful and thus allocation of time to oneself. We think that time appropriation is grounded in existential and social-psychological needs. Viewing time, along with space, as fundamental dimensions of human existence, this dimension presents both an uncontrollable and fluid quality and existential possibilities for choices. In existential philosophy, notably Heidegger's exploration of "being-toward-death," time represents an ever-looming finitude that forces individuals to confront their mortality, highlighting the inherent uncertainty of existence (Ökten, 2021; Yılmaz, 2020). "Being in a world" suggests that our relationship with time is not just abstract but embedded in the way we act and experience the world around us (Heidegger, 1927/2020; Ökten, 2021). Thus, the appropriation of time is a way of asserting one's presence in the world, giving meaning to otherwise fleeting moments and a life drifting toward nothingness and death.

Time appropriation can be seen as an effort to resolve uncertainty and familiarize oneself with the uncanny, serving as an anchor to avoid being ensnared in the flow of time. For example, setting up a dedicated morning routine can be seen as an act of time appropriation; by consistently devoting a part of the day to specific activities like exercise, reading, or quiet reflection, individuals make that time their own, transforming it into a predictable and meaningful experience. Another example can be found in the practice of marking family dinners or weekly social gatherings on the calendar. By establishing recurring times for connection and relaxation, individuals claim these moments from the flux of daily obligations, creating stable, valued time blocks that contribute to a sense of continuity and belonging.

Understanding time as a limited and valuable resource necessitating effective control in our daily lives shaped by contemporary social and economic relations (Bilgin, 2013), this perspective, encapsulated in the metaphor "time is money" (Michon, 1990), underscores the importance of managing time as a value. In modern society, time is often portrayed as a means to enhance production and productivity. In the context of today's digital era, this notion becomes even more pressing, as individuals increasingly navigate fast-paced online environments that blur the boundaries between personal and professional life. Digital tools and constant connectivity amplify the pressures to be productive, where every moment spent online or offline is often perceived as a transactional opportunity or a potential loss of value. Alienation defined as separation, disconnection or distancing from oneself, or society (Nair & Vohra, 2010) is another widespread problem. Thus, we argue that individuals increasingly require time that they can claim for themselves in the face of mounting time pressures and monotonous living and working conditions. Time appropriation periods can be described as instances when individuals authentically exist, renew and produce themselves, unlock their potential, and undergo transformation. Similarly, we think that time appropriation behaviors may be linked to the need to

experience a sense of self and to make others feel one's own self by differentiating their time in this world from that of others (Göregenli, 2021; Korosec-Serfaty, 1985).

Time appropriation is distinct from related concepts in the literature, such as leisure, time perspective, and time work, as it encompasses unique characteristics. Leisure is generally defined as the time remaining after work and other commitments (Scraton, 2007). It includes voluntary, enjoyable non-work activities (Fancourt et al., 2021). However, time appropriation does not necessarily include this residual time or leisure activities. Time perspective (Zimbardo, & Boyd, 1999) involves beliefs, expectations, and attitudes about the past, present, or future. For example, time perspective theory focuses on the perception of time zones, such as viewing the present with a hedonistic or fatalistic perspective. Time appropriation, however, emphasizes the processes through which individuals engage with time, such as how specific periods become personally significant. Time perspectives have important implications for people's evaluations of their well-being (Diaconu-Gherasim et al., 2023; Li et al., 2024), which we propose also applies to time appropriation. Furthermore, time appropriation differs from Flaherty's concept of time work (Flaherty, 2011). Time work involves customizing temporal experiences, defined as "one's effort to promote or suppress a particular temporal experience" (Flaherty, 2003, p. 19). This refers to altering, controlling, or personalizing temporal experiences, also known as temporal agency (Flaherty, 2017; Stoicescu & Flaherty, 2023), and is exhibited through changes in duration, frequency, sequence, timing, allocation, and the act of taking time (Flaherty, 2002, 2003). On the other hand, time appropriation centers on how individuals perceive segments of time as part of their identity.

We aim to explore the concept of time appropriation by examining its core features through three studies. In Study 1, we explore the complexities of the time appropriation process and its qualitative dimensions. Following this, Studies 2 and 3 concentrate on developing a measurement tool for this concept, ensuring both statistical reliability and validity. Study 1 explores the intricate processes and dimensions of time appropriation using qualitative analysis. The insights gained from this study illuminate key dimensions such as identification, meaning, emotion, ownership, transformativeness, sociability, and physical environment, which are detailed below. These findings are essential for establishing the conceptual framework for Studies 2 and 3. Based on the qualitative insights from Study 1, Studies 2 and 3 focus on developing and validating a comprehensive measurement tool for time appropriation. The dimensions identified in Study 1 inform the creation of scale items, ensuring that the tool reflects the lived experiences and perceptions of participants. Specifically, we quantitatively assess the high levels of ownership, meaning, and transformativeness identified in Study 1 in Studies 2 and 3. By incorporating these dimensions into the measurement tool, we ensure the scale effectively captures the multifaceted nature of time appropriation.

Study 1

Method

Participants and procedure The sample comprised 15 adult participants (7 females, 8 males) in Türkiye, with balanced characteristics in terms of age, gender, marital status, perceived income level, and profession. Participants were in the adult age group, middle-income level, and employed (see the demographic characteristics in the Supplementary Material 1). The participants ranged in age from 33 to 46 years, with an average age of 39.4 years. In terms of marital status, 60% of the participants were married and 40% were single. There was a wide range of educational levels, with the majority of participants (40%) having a bachelor's degree, 20% having a secondary or high school degree, and 13.3% having a postgraduate degree. The participants represent different occupational groups such as teachers, tradesmen, engineers, medical secretaries and academic staff, and all work full-time. Monthly incomes ranged from 3,500 TL to 15,000 TL[1], with 40% of participants rating their income as above average, 40% as average and 20% as below average. The first author recruited participants through recommendations from his social network and suggestions, utilizing criterion sampling and snowball sampling techniques. The sampling methods used to identify participants are based on criterion and snowball sampling, the representativeness of the sample should be approached with caution. Both may have resulted in a sample that shares certain characteristics, potentially limiting the generalizability of the findings to broader populations. In particular, participants recruited through personal networks may share similarities in social, cultural or psychological dimensions that may influence their experiences and perceptions of time appropriation. However, with the diversified samples of two subsequent quantitative studies, we found some evidence for the reliability and validity of the dimensions explored in this study.

Ethical approval was obtained from Istanbul University (2020/126, 21/10/2020, 57531).. The research was conducted in accordance with the ethical guidelines specified in the APA Code of Conduct as well as the authors' national ethics guidelines (respectively, American Psychological Association, 2017; Turkish Psychological Association, 2004). Participants were contacted by phone, and preliminary interviews were

[1] During the period of data collection, the minimum wage was increased first to 2,324.70 Turkish Lira (TL) and then to 2,825.90 TL.

conducted to confirm criteria such as age, income level, and employment status. An interview schedule was set with eligible volunteers, who were then included in the sample. Interviews conducted face-to-face (3 participants) or online (12 participants, e.g., Zoom Video Communications, TeamLink, or Skype) based on preferences and pandemic conditions, took place between October 2020 and January 2021. Participants gave permission for recording, and interviews were held in quiet, secure settings, primarily at participants' homes or isolated areas at workplaces. Before the interview, participants received an informed consent form via email, providing a brief overview of the study. Their agreement marked voluntary participation. In addition to predetermined open-ended questions, follow-up queries encouraging participants to share personal experiences were incorporated into the interview flow. Data saturation, agreed upon by first and second authors, led to the conclusion of participant recruitment. Saturation was determined by the point at which no new themes or insights were emerging from the interviews, and further data collection was unlikely to contribute additional understanding to the research questions. This was assessed through a combination of thematic analysis, ongoing review of the interview transcripts, and the authors' consensus. Transcription of recordings was carried out verbatim by the first author and two psychology students.

Materials

Socio-demographic information form This questionnaire gathers participant information, covering age, gender, marital status, profession, and perceived income level.

Semi-structured interview questionnaire on time appropriation Featuring open-ended questions, this form explores participants' time appropriation habits, such as, "Do you designate or allocate specific periods for yourself in your daily, weekly, monthly, or yearly routines?" "If so, kindly share details about this time period and its significance." These questions, informed by the conceptual definition and relevant empirical studies (Brunson et al., 2001; Feldman, & Stall, 1994; Korosec-Serfaty, 1976, 1984, 1985; Morval, & Judge, 2000; Rioux, 2004; Rioux et al., 2017), were prepared by the authors to investigate participants' time appropriation processes.

Analysis

Data analysis was conducted using MAXQDA 20 Software, employing template analysis as described by Brooks et al. (2020). MAXQDA 20 was chosen over other software, such as NVivo, for its user-friendly interface, visualization tools, and robust analytical capabilities, including systematic coding and thematic exploration. These features align closely with the study's objectives and the structured approach required for template analysis, ensuring methodological rigor and efficient handling of complex qualitative data. Template analysis facilitates the examination of recurring patterns both within and across participants, making it particularly valuable for comparing diverse perspectives within a specific context. Template analysis involves a structured yet flexible approach, allowing researchers to adapt to the study's specific needs (King, 2004). The key steps in template analysis include familiarizing oneself with the data, preliminary coding, clustering, developing the initial template, modifying the template, defining the final template, utilizing the template for data interpretation, and writing up the findings (King et al., 2018).

Results and discussion

In template analysis, creating a template is an iterative process that requires careful attention. In this study, the template development (coding) was carried out by the first author and reviewed by the second author. This coding and review process was iterative, and finalizing the codes involved negotiating any incompatibilities. The template development involves two main steps: creating the initial template and finalizing it. The analytical breakdown of the procedural steps is in the Supplementary Material 2.

To develop the initial template, the first aim was to familiarize with the texts. In this context, in addition to carefully reviewing the notes taken during the interviews, some of the texts (4 out of 15 interviews) were randomly selected and read several times in full and in detail. Then, for the top (hierarchically) codes to be used in preparing the preliminary coding list of the texts, the codes of psychological processes, temporal qualities, social environment and physical environment were used for the holistic coverage of human experience. The hierarchically lower codes were prepared by utilizing the themes of the interview questions, the observation notes kept during the interviews and the information contained in the literature on appropriation. Subsequently, the themes that emerged from this code list were grouped in a meaningful integrity and it was determined how these groupings were related both within themselves and with each other. In the following stage, the draft (first) version of the initial template was coded in four different interviews. This template, which was shaped in the previous stage, was applied to three more interview transcripts in which representative responses were given. In the course of this process, various changes (such as adding a code, deleting a code, changing the scope of the code or changing the location of the code) were made to the codes in the draft initial template. For example, the sub-codes

indicating the relationship of adoption and belonging, which were included in the 'meaning' code in the initial template, were removed from the meaning code and merged under the 'identification' code newly added to the final template. The 'transformativeness' code, which was not included in the initial template, was added to the final template based on the definition of the concept of appropriation and the participants' responses. The revised initial template was applied to other texts and finalized (final template).

The final template was then applied to participants' behaviors (starting from the beginning of all texts), involving events and situations in time appropriation, dividing it into appropriating recurrent time units (e.g., specific time periods of the day) and time appropriation zones (e.g., specific time periods of the past) to maximize coverage. Recurrent time units reflect predictable, cyclical patterns containing repetitive units such as day, month, year. They generally guide daily routines. In contrast, time zones are associated with distinct phases or moments in an individual's life containing as past, present, and future. In recurrent time units, the main focus is more often the whole or a part of the present (e.g., certain hours in the morning, time off work), whereas in time zones the main focus is more often the whole or a part of the past (e.g., childhood, university years).

Table 1 Participants' appropriating time segments

Appropriating time segments		
No	Appropriating recurrent time units	Appropriating time zones
1	Flexible time periods	A whole past especially university years
2	Flexible time periods	A whole past
3	Flexible time periods	Education years (university years)
4	Flexible time periods	Education years (university years)
5	Morning hours (approximately 06.00–08.00)	Education years (university years)
6	Weekends and evening hours (approximately after 22.00)	Time with family (up to the
7	Morning (approx. 08.00–09.30) and night hours (approx. 23.00–01.00)	(Twenties) whole education periods
8	A whole now	None
9	Time spent with family	None
10	Off-hours	Preparation period for university exam
11	Off-hours	Whole education periods
12	A whole now	Childhood and university period
13	Evening hours (approximately between 21.00–01.00)	A whole past
14	TV series watching times	A whole past
15	Off-hours	Childhood period

The final template was separately applied to these two segments. When analyzing participants' time appropriation as a whole, the most common recurrent time units were "flexible time periods" (4 participants), "off-hours" (3 participants), and "morning and evening hours" (3 participants), while the most common time zones were "graduate education years" (5 participants) and "a whole past" (4 participants) (see Table 1).

The appropriation of recurrent time units such as "off-hours", "morning and evening hours" and "flexible time periods" suggests that participants perceive these periods as distinct from structured working hours. These moments, often associated with personal routines or leisure activities, offer flexibility and autonomy, making them conducive to sociability and reflection. For instance, one participant remarked, "At work, I don't have much time for myself." (P15) (see also Quote 16). Such examples highlight how these time periods enable meaningful engagement outside the constraints of professional obligations.

Participants engage in time appropriation by relating to the ongoing or recurring present and past experiences. Across both axes, participants predominantly engage in the sub-dimensions of *identification*, *meaning*, *emotion*, *ownership*, *transformativeness*, *sociability*, and *physical environment* (see Fig. 1 for the conceptual model diagram of time appropriation). The appropriation process involves participants developing a deep connection with specific time periods, which are filled with special meanings and positive emotions. They feel a strong sense of ownership and individual control over these periods, leading to psychological renewal, heightened awareness, and self-transformation. This transformation occurs as participants immerse themselves in these time periods, experiencing them in an unmediated and comfortable manner. Psychological processes that occur during time appropriation happen within specific social and physical environments. Although the people and features of these environments may vary, social circles like family and close friends, as well as settings such as home and natural surroundings, are consistently places where participants feel free, safe, and comfortable, allowing them to establish strong bonds. The following section details the results of the time appropriation process, focusing on recurrent time units and time zones.

Results of recurrent time units appropriation

Participants exhibit a high level of acceptance and strong belongingness to their appropriated time periods, reflecting a substantial identification with these periods (see Quote 1; Supplementary Material 3 for examples of participants' statements). The identification dimension of time appropriation refers to the extent to which individuals associate

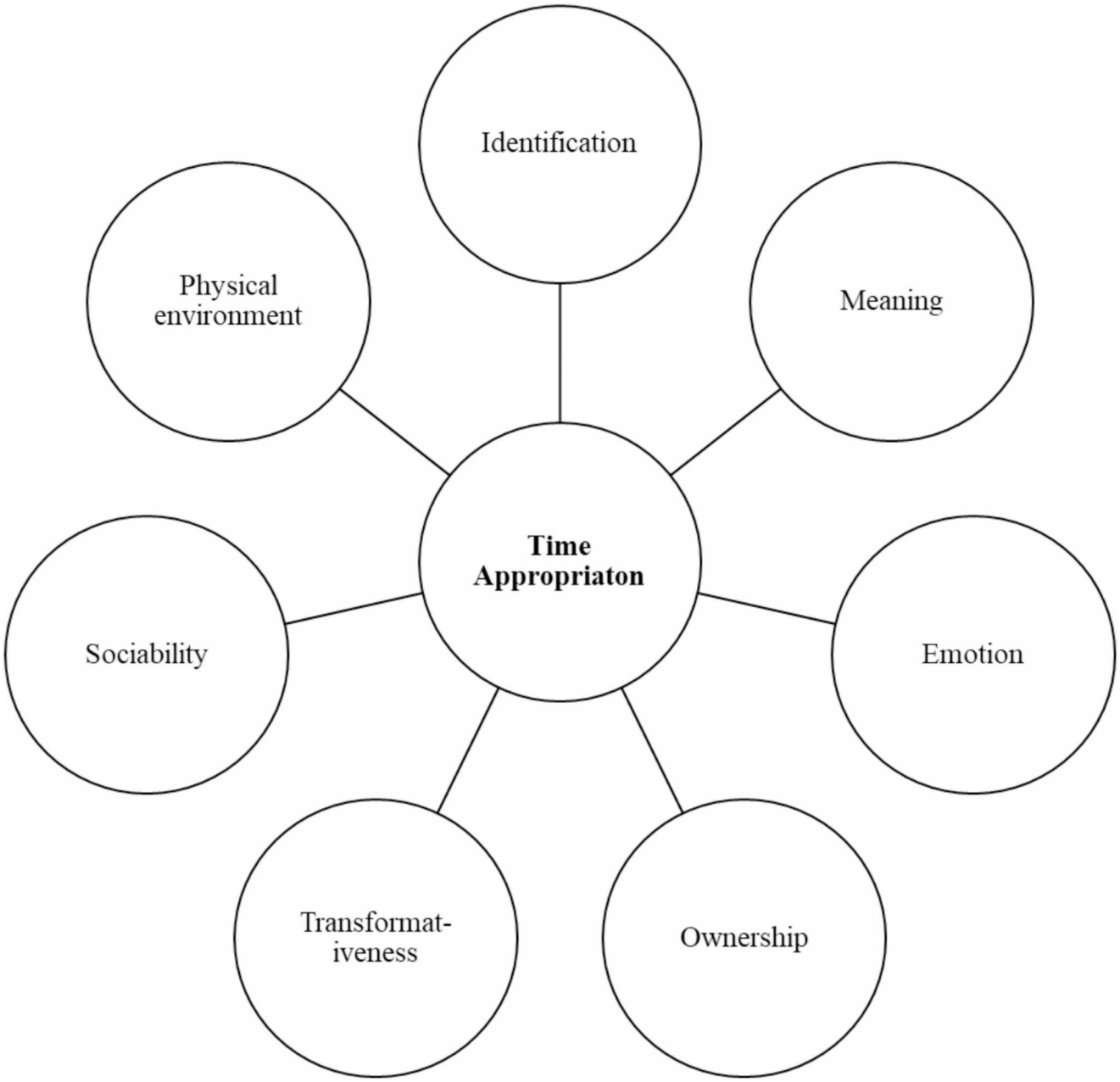

Fig. 1 Conceptual model of time appropriation

themselves with specific time periods, perceiving these times as integral to their personal identity. It highlights the intrinsic connection between self-perception and the temporal boundaries participants actively select. The belonging relationship with appropriated time allows individuals to distance themselves from social roles and hectic work life (see Quote 2).

The duration and scope of time appropriation may vary based on workload. For instance, a participant, responsible for managing the financial affairs of different stores, designates morning hours (around 08:00–09:30) and night hours after work (around 23:00–01:00) as her time periods. During these mostly home-bound hours, sociability is minimized, and no intentional housework or workplace-related tasks are undertaken (see Quote 3.) Although these time periods have remained largely consistent for about 20 years, the participant acknowledges that she used to spend more time on herself in the past (see Quote 4).

Participants' time appropriation does not always require distinct time intervals; even brief moments of solitude can be considered part of these times (see Quote 5). Periods of time appropriation are often characterized by their unique

and distinct qualities, offering individuals a profound sense of privacy, autonomy, security, and meaning. The meaning dimension of time appropriation lies in how individuals transform time into a personally meaningful resource. This involves imbuing specific moments with values, meanings, or emotional resonance that reflect their identity and aspirations, thereby creating a deeper sense of connection and fulfilment. This personal connection with time involves shaping it according to their one's own needs and aspirations, enabling a sense of autonomy and purpose (see Quote 6). Generally, time appropriation periods evoke positive and satisfying emotions in participants (see Quote 7).

Given the link between positive feelings, emotions, psychological well-being, and life satisfaction (Cohn et al., 2009; Diener et al., 2010), it can be argued that time appropriation positively contributes to people's psychological well-being. The emotional dimension of time appropriation encompasses the array of feelings tied to appropriated time, often characterized by tranquility and joy, which contribute to individuals' broader mental health and satisfaction. Described as an existential and psychological need, time appropriation seems related to a process where individuals separate their time from others, introspect, and foster self-realization. This need is also connected to psychological well-being and health (see Quote 8).

Participants exert as much control as possible over their time appropriation periods and strongly own these periods. If these periods are violated, participants typically exhibit attitudes and behaviors to rectify the violation. The ownership of time appropriation is so crucial that, when unable to react behaviorally to such violations, participants claim their time with cognitive strategies (see Quote 9). The ownership dimension of time appropriation, in this context, involves not only the physical management of time but also cognitive strategies to maintain its sanctity, even under external pressures.

Time appropriation does not necessarily exclude time left over from work and other obligations, such as leisure (see Quote 10a). In addition, people transform periods of time that are not under their control through various appropriation practices, expanding the content and scope of the time. They appropriate the whole of present time. Similarly, the appropriation of time has psychologically positive differentiating effects (such as the experience of satisfaction) on the participant (see Quote 10b). In addition, people transform periods of time that are not under their control through various appropriation practices, expanding the content and scope of the time they appropriate. They appropriate the whole of present time. Similarly, the appropriation of time has psychologically positive differentiating effects (such as the experience of satisfaction) on the participant (see Quote 10b). The transformativeness dimension of time appropriation refers to the impact of the appropriated time zone on both the individual and the time zone itself, encompassing emotional, behavioral, and structural changes. Emotionally, this dimension manifests in experiences such as renewal or calm (e.g., "During these times, I feel rejuvenated"), while behaviorally, it may involve noticeable shifts, such as a slower pace of actions (e.g., "During these times, even my behavior slows down"). Additionally, the transformativeness dimension includes the capacity to voluntarily modify the boundaries or structure of the appropriated time zone. This could involve altering the timing, content, or scope of the time period. For instance, if one's appropriated time zone is the early hours of the morning, adjusting its start and end points such as moving it earlier or later represents a transformation of the appropriated time zone.

During the appropriation of recurring time units, interpersonal relationships tend to be minimized. This state, often characterized as being 'alone,' is deemed an essential experience for some participants during their time appropriation periods. Reduced sociability manifests spatially, whether in participants' private rooms for isolation at home, natural environments with fewer people, or public spaces offering anonymity. This highlights the active role of sociability and the physical environment in the appropriation process (see Quote 11). The dimension of sociability describes the intentional modulation of social interactions to enhance the quality of time appropriation, allowing participants to focus inward or on personally meaningful activities. Similarly, some participants articulate the spatial expressions of reduced sociability during their time period (see Quote 12). The physical environment dimension of time appropriation highlights how spatial settings enable individuals to carve out moments of solitude and personal control, facilitating the psychological benefits associated with reduced sociability. This dimension emphasizes the importance of environments that support privacy and personal space, whether within the home or in external settings. For instance, participants often retreat to quiet and isolated locations, such as natural environments or private areas within their homes to ensure uninterrupted time for themselves. These spaces serve as protective boundaries, separating the individual from social obligations and allowing them to fully engage in self-focused activities. By creating a physical distance from others, these environments play a crucial role in fostering autonomy, relaxation, and a sense of ownership over one's time.

For some participants, time appropriation is directly linked to social relations. P9 (46 years old, male, married), for instance, constructs his appropriated time through spending time with his family, referred to as 'family time,' where he perceives the passage of time as very fast (see Quote 13). Family time may occur when individuals are unable

to allocate time for themselves individually, and this unallocated time is spontaneously orientated towards and shared with the family (see Quote 14). Shared time appropriation may be related to living in a culture with more communitarian values (Markus, & Kitayama, 1991). Time appropriation emphasizes personal ownership and control, but cultural characteristics in a relatively collectivist city like Van (in Türkiye's eastern region) suggest that personal ownership in time appropriation is constructed by investing more in certain interpersonal relationships. Moreover, considering the tendency of people to expand their potential efficacy through those they consider close (Aron & Aron, 1986, 1996) and the need-based attitudes and behaviors towards establishing and maintaining harmonious emotional and personal connections with others (Deci & Ryan, 1985; Ryan & Powelson, 1991), it becomes more understandable that participants organize their time appropriation by sharing it with others they consider close. Additionally, when this need for relatedness is satisfied, it tends to increase self-motivation and mental health (Ryan, & Deci, 2000). Consequently, it can be argued that a person who appropriates time is likely to be more open to satisfying this need during the time periods, compared to other time periods.

The time periods participants appropriate are closely tied to their marital status, this influences their relationship with time. Single participants are able to appropriate larger chunks of time; When one is single, one tends to be more sociable in one's practices in one's appropriated time and makes more use of spaces outside the home. This can be attributed to the temporal flexibility and autonomy afforded by singlehood, which enables individuals to organize their time without needing to coordinate with the schedules and needs of others. Such autonomy can facilitate greater participation in activities that demand extended and uninterrupted time periods, such as hobbies, travel, or social gatherings. This situation changes radically when one is married. Married participants appropriate much shorter chunks of time, especially with family members (i.e. "family time"). Married ones can minimize sociability and increase the use of domestic spaces in one's practices in one's appropriated time. This shift reflects the prioritization of familial responsibilities and the shared negotiation of time, which often requires alignment with a partner's or family members' routines. The restructuring of time also mirrors the transition in life priorities, where domestic roles and shared moments within the family unit gain prominence. Married participants' activities, social interactions, and use of space during these periods are often different from when they were single (see Quote 15).

Appropriated time periods are typically moments of minimal personal responsibility and obligation, offering a relative sense of freedom. These periods of time can sometimes be seen as so important that extra effort is made to experience them. Participants often view these periods as passing quickly (see Quote 16).

The dimensions of time appropriation interrelate in complex ways. Each dimension plays a crucial role in shaping the individual's relationship with time, offering distinct yet interconnected mechanisms.

The identification dimension provides the foundation for time appropriation by establishing the emotional and psychological connection between individuals and their chosen time periods. By identifying with specific times, individuals assert control over their times, shaping their identities in relation to these periods. This identification is further amplified by the sense of belonging that participants feel toward their appropriated times, which offers an emotional refuge from the demands of external roles. Together, these dimensions contribute to a strong sense of ownership over time, enhancing the subjective meaning individuals attach to it.

Similarly, the ownership dimension of time appropriation emphasizes not only the active control of time but also the protective strategies individuals employ to maintain the meaning of these periods. When these periods are disrupted, the reactive cognitive strategies employed to restore them demonstrate the significance of preserving personal time as a psychological resource. This dimension, combined with the transformativeness of time appropriation, reinforces the idea that appropriated time is not static but subject to fluid boundaries, adapting over time to meet the individual's evolving needs and goals.

The emotional and transformative aspects of time appropriation further underscore the adaptive nature of how individuals use their time for psychological well-being. By intentionally selecting and modifying the structure of their appropriated time, individuals are able to foster a sense of renewal and self-regulation, crucial for emotional health. This process aligns with theories of self-care and personal growth, where the modification of one's temporal environment becomes a tool for emotional restoration and personal development. Moreover, the physical environment in which time appropriation occurs acts as a critical enabler of this process, providing the necessary space for solitude, introspection, and the cultivation of positive emotional states.

The dimensions of time appropriation work synergistically, allowing individuals to carve out time that reflects and reinforces their sense of identity, emotional needs, and personal goals. This complex interrelationship highlights the multifaceted nature of time as not just a passive backdrop for activities but as an active and transformative resource that individuals shape and defend to enhance their psychological well-being.

Results of time zones appropriation

The dimensions (e.g., *identification*, *ownership*) in the process of time zones appropriation closely parallel those in the appropriation of recurrent time units. Differentiated results are presented below. When analyzing the processes of time appropriation zones (past, present, and future), participants' educational life, in particular, stands out among the appropriated time zones (see Quote 17). University years stand out due to the high perception of control over time during this period (Quote 18).

In cases where the past is appropriated, the nostalgic effects of experiences, remembered with longing and generally evoking positive emotions, are emphasized. Considering the positive impact of these nostalgic influences on people's affect, self-esteem, social connectedness, and perceptions of the meaning of life (Routledge et al., 2011, 2013; Wildschut et al., 2006), the significance of nostalgic ties in the context of time appropriation becomes evident. It can be argued that these nostalgic effects may contribute positively to participants' well-being and psychological health (Routledge et al., 2013). Past appropriation does not imply being stuck in the past; if it did, it could lead to negative consequences such as fixation on the burden of the past or depressive symptoms. Additionally, the aspects of time appropriation periods that shape the present and the future are crucial for participants.

While sociability in recurrent time units appropriation generally tends to decrease, sociability in time zone appropriation tends to increase. This distinction can be attributed to the differing psychological functions of these time structures. Recurrent time units, such as daily or weekly routines, often reflect the habitual and predictable nature of social interactions, which may grow monotonous or lose their emotional intensity over time. In contrast, time zones defined as broader, less rigid time frames encourage a reflective and holistic engagement with one's past, often highlighting meaningful interactions and shared experiences. This change is likely related to the recollection of experiences with other people during retrospective evaluation of the past. As individuals reflect on these experiences, the salience of emotionally rich or significant social encounters may amplify, reinforcing a stronger sense of sociability within these expansive time frames. Furthermore, this process underscores the temporal distance's role in shaping memory, where distant yet impactful events may often be imbued with greater social and emotional significance.

In summary, time appropriation involves recurrent time units and time zones, encompassing dimensions of *identification*, *meaning*, *emotion*, *ownership*, *transformativeness*, *sociability*, and *physical environment*. Participants strongly identify with and find unique meanings in their time appropriation, experiencing satisfying and generally positive emotions. They exhibit a high degree of ownership and individual control over these periods, using them to undergo psychological renewal and transformation. These processes occur within specific social and physical environments, characterized by social circles and settings where participants feel free, safe, and comfortable, establishing strong bonds. Evaluating these summarized processes suggests that time appropriation positively contributes to psychological well-being, happiness, and life satisfaction by enhancing attention and self-awareness processes (Brown & Ryan, 2003; Cohn et al., 2009; Diener et al., 2010).

Furthermore, in cultures like Türkiye, where both autonomy and relatedness are emphasized (İmamoğlu, 1987; Kagitcibasi, 1990, 1996), time appropriation becomes a series of personal and shared actions with others, establishing both individual and shared qualities. Time appropriation processes contribute to individuals in exploring their self-motivations and enhancing psychological health by satisfying innate basic psychological needs such as autonomy, relatedness, and competence (Ryan, & Deci, 2000).

Studies 2 and 3 undertake to test the qualitative results derived from Study 1 within extensive sample sizes. These studies aim to conduct a thorough statistical examination of factors linked to time appropriation and, significantly, to quantitatively measure the concept of time appropriation with robust statistical reliability and validity. This measure may be further used to study the concept of time appropriation in large samples and to examine the concept in more detail.

Study 2

Method

Participants and procedure Ethics approval for Study 2 and Study 3 was obtained from Van Yuzuncu Yil University (2023/02-11, 06/02/2023, 13899). The research was conducted in accordance with the ethical guidelines specified in the APA Code of Conduct as well as the authors' national ethics guidelines (American Psychological Association, 2017; Turkish Psychological Association, 2004). In Study 2, 371 participants (197 female, 174 male) volunteered to participate (aged 18-84 years, Mean (M) = 34.512, Standard Deviation (SD) = 12.977). 67.4% of the participants had a bachelor's degree or higher. When the income distribution was analyzed, it was observed that the majority (58.3%) had an income at or below the minimum wage. The mean of the participants' religious affiliation (1 = not affiliated at all, 7 = very affiliated) is 4.804 (SD = 1.812); the mean of their political views (1 = left, 7 = right) is 3.717 (SD = 1.717).

Data collection was conducted through online platforms in May and June, as Türkiye switched to online education conditions following the Kahramanmaraş Earthquake in February 2023 (2023 Kahramanmaraş Earthquake, 2024). Convenience sampling was used to collect data. Each application lasted, on average, 15 minutes. The study link was disseminated through researchers' social networks, student communication platforms, and researchers' social circles to enhance participant diversity. Additionally, volunteer students were encouraged to share the link with adults within their networks to further expand the participant pool.

The use of convenience sampling, while practical for reaching a broad participant base, poses limitations regarding the generalizability of the findings. Recruiting participants through social networks, student communication platforms, and social circles may introduce selection bias, as the sample is likely to be skewed toward individuals with access to these channels and who are motivated to participate. It is extremely important that this point may not be ignored.

Materials

Socio-demographic information form This form includes questions to collect information on participants' age, gender, income, education, religious affiliation, and political views.

Development of the item pool Aligned with the themes in Study 1, the first and third authors prepared 93 items. The time appropriation is a generic concept. Since the word 'appropriation' is not commonly used in everyday Turkish language, we have utilized three sets of words to convey this concept: (a) times when I feel a sense of belonging to myself, (b) times when I feel a piece of myself, and (c) times that I allocate for myself. To ensure a systematic approach, these items were created by drawing directly from the thematic framework established in Study 1, which served as the conceptual basis for item generation and from participants' statements in the interviews. Specific criteria for item selection included alignment with the identified dimensions of time appropriation, linguistic clarity, and cultural appropriateness.

Before the pilot study, these items were submitted to six reviewers in the field of psychology. The reviewers assessed the items based on repetition, comprehensibility, and alignment with the concept of time appropriation. Repetition was defined as the extent to which items redundantly conveyed identical meanings, potentially reducing the scale's discriminative power. Comprehensibility referred to the degree to which the items were easily understood by potential respondents, ensuring accessibility across varying educational backgrounds. Alignment with time appropriation evaluated whether the items adequately captured the conceptual essence of the construct as defined in the study. Based on the reviewers' feedback, the original 93 items underwent careful review, reorganization, and the addition of new items. The revised 102 items were then resubmitted to the same reviewers.

This time, reviewers evaluated each item on a 3-point scale regarding its reflection of the concept of time appropriation. Furthermore, they assessed the items holistically using a 5-point Likert-type scale in terms of their alignment with the concept of time appropriation. Open-ended questions were utilized for additional opinions and suggestions. The inclusion of open-ended questions aimed to provide reviewers with the flexibility to highlight nuanced issues, suggest rephrased wording, or propose entirely new items that might enhance construct validity. The data were used to calculate consistency coefficients for the reviewers' evaluations through Fleiss kappa analysis using the JASP 0.18.0 program (JASP Team, 2023). Analysis results indicated a raw coefficient of agreement at 0.61. After kappa correction, no significant agreement was observed, kappa (κ) = 0.03, p = .95.

The difference between the Fleiss kappa coefficient and the raw agreement coefficient may stem from the tendencies of raters in evaluating item suitability. When raters consistently score items in one direction (e.g., approval or disapproval), the kappa statistic often interprets the probability of agreement as largely due to chance. This scoring pattern also contributes to a decrease in variance (Gwet, 2014; Hallgren, 2012). To address these limitations, Raykov et al. (2013) proposed an agreement method based on structural equation modeling. In this framework, items or raters with non-significant t-values are considered to indicate inconsistent evaluations. Structural equation modeling identified items 18, 22, 51, 61, 63, 67, 94[2], and 97, with non-significant t values, which were excluded from the analysis. This rigorous selection process ensured that only items with robust psychometric properties were retained, thereby enhancing the reliability and validity of the item pool. The analysis was then repeated, revealing a moderately significant fit: raw fit value 0.79, κ = 0.28, p = .01. Meanwhile, the mean of the item assessing the overall scale was 4.833 (SD = 0.408). The remaining items were renumbered, and the data collection phase commenced with 95 items for exploratory factor analysis.

To assess the clarity and comprehensibility of the items, a preliminary application was conducted with a group of students. Observations indicated that none of the students

[2] This item was included in the exploratory factor analysis because it was considered to be compatible with the theoretical aims of the study. However, it was later removed because it still did not fit the model after the exploratory factor analysis.

encountered difficulties in understanding the items. Based on both expert feedback and the absence of issues reported by the students, it was concluded that the item pool was suitable and ready for full-scale implementation. By integrating expert reviews, advanced statistical modeling, and practical pre-testing with participants, this multi-step approach ensured the development of a robust and theoretically aligned item pool.

Findings

Multivariate normality was assessed using Mahalanobis distance z-values. (min. z value = −2.27; max. z value = 3.28). The data demonstrated multiple normality, as accepted by previous studies (Ghasemi & Zahediasl, 2012; Linda et al., 2023). Additionally, person-fit indices for participants' response patterns ranged between +1 and −1 (Ferrando et al., 2016).

For the exploratory factor analysis, principal axis factoring with oblimin rotation was conducted, confirming the data's suitability for factor analysis ($KMO = 0.965$, $p_{Bartlett} < 0.001$). Parallel analysis suggested six components, while eigenvalue-based analysis suggested 16. To reduce the number of items, a strict factor loading criterion was applied, removing items with factor loadings below 0.35 (Taherdoost et al., 2020; Tavakoi & Wetzel, 2020). Additionally, items with uniqueness values above 0.60 were excluded (Fabrigar & Wegener, 2012; Izquierdo et al., 2014), resulting in the exclusion of 65 items from the scale.

These exclusions, although extensive, were necessary to ensure that the retained items were strongly representative of their underlying constructs and to enhance the overall reliability and validity of the scale. The removed items were found to either fail to load significantly onto any factor or exhibit high levels of uniqueness, indicating that they did not contribute meaningfully to the shared variance within the dimensions being measured. By refining the scale in this manner, the resulting factors are more robust and theoretically aligned, minimizing redundancy and noise. This rigorous item selection process also helped clarify the dimensional structure, ultimately leading to a more parsimonious model with enhanced interpretability and theoretical relevance.

Consistent with the parallel analysis conducted in the JASP program (Buja & Eyuboglu, 1992; Horn, 1965) and the MAP (Minimum Average Partial) test performed in the FACTOR program (Velicer, 1976), the eigenvalue-based analysis suggested a three-factor structure, and the items were assigned to their respective factors. Upon analyzing the scree plot, it was also observed that a three-factor structure was evident based on the eigenvalues derived from the original data and the bootstrap simulation. While only item 23 showed cross-loading (0.357 and 0.392), it was assigned to the factor with the highest theoretical appropriateness.

The three identified factors accounted for 61.5% of the total variance. Specifically, the self-discipline factor (*eigenvalue* = 7.092) explained 24.40% of the variance, the spontaneity factor (*eigenvalue* = 5.586) explained 19.30%, and the inwardness factor (*eigenvalue* = 5.163) explained 17.80%. Among the items, item 23 (self-discipline) exhibited the lowest factor loading at 0.392, whereas item 35 (spontaneity) showed the highest loading at 0.904 (see Supplementary Material 4).

Internal consistency reliability coefficients, measured by Cronbach's alpha (α) and McDonald's omega (ω), were robust across all three factors. The reliability for the self-discipline factor was $\alpha = 0.928$ and $\omega = 0.929$; for the spontaneity factor, $\alpha = 0.941$ and $\omega = 0.939$; and for the inwardness factor, $\alpha = 0.943$ and $\omega = 0.939$. Item-total score correlation values ranged from 0.633 for item 27 to 0.869 for item 35 (see Supplementary Material 5). Additionally, analysis of inter-factor correlations revealed significant associations: a correlation of 0.803 between self-discipline and spontaneity, 0.803 between self-discipline and Inwardness, and 0.803 between spontaneity and inwardness, with all correlations significant at $p < .001$.

Based on the exploratory factor analysis conducted in Study 2, a three-factor structure was identified. Furthermore, the analysis demonstrated that both the factors and the overall scale exhibit high reliability.

Study 3

Method

Participants and procedure 988 participants (556 females, 432 males) voluntarily participated in Study 3 (aged 18–68 years, $M = 28.522$, $SD = 9.910$). The participants lived in the cities of Izmir ($n = 309$) or Van ($n = 679$) in Türkiye. Izmir and Van were selected to capture regional diversity, with Izmir representing a more urbanized, developed setting and Van reflecting a smaller, more collective, and culturally distinct city. Izmir's higher development index, with all districts in the top four levels, contrasts with Van's lower development levels, where most districts fall in the third to sixth levels (SEGE, 2019). Additionally, demographic characteristics such as average household size and fertility rates further highlight the differences: Van exhibits more collective traits (larger households and higher fertility rates) compared to Izmir (TÜİK, 2022a, b).

52.6% of the participants had high school education and 30.0% had bachelor's degree or higher. Analyzing income distribution revealed that 32.5% reported having a

minimum income or less. The mean religious affiliation of the participants was 4.51 (SD = 1.86) and the mean political view was 3.49 (SD = 1.63). Convenience sampling was also used for Study 3, and face-to-face data collection took place in October and November 2023, coinciding with the return of face-to-face education in Türkiye. Each application took an average of 20 min to complete. Although this sampling method allows for the inclusion of a diverse pool of participants, caution should be exercised when extrapolating findings to different segments.

Materials

Time appropriation scale The scale developed by the authors to understand people's relationship with time, was organized as 29 items after the exploratory factor analysis (see Supplementary Material 6). It consists of three sub-dimensions, namely self-discipline, spontaneity and inwardness. The self-discipline dimension consists of items related to control, ownership, and commitment to time appropriation, along with items pertaining to personal growth, feeling free, and being disciplined. Examples from this dimension include "I generally feel in control at the times when I feel a piece of myself" and "I am more disciplined at times when I feel a sense of belonging to myself."

The spontaneity dimension consists of items indicating that time appropriation periods allow people to behave according to their natural orientations, expectations, and feelings without any external coercion. It also includes related items such as calm and serene states. This dimension refers to the time periods when people know themselves better, feel more like themselves, and think that they have more awareness. Examples from the dimension include "I do whatever I want at times when I feel a sense of belonging to myself" and "I realize that I can get to know myself better at times when I feel a piece of myself."

The inwardness dimension consists of items indicating that inner states, such as meaning, harmony, peace, contentment, compassion, being at peace with oneself, and feeling strong-willed, are experienced more during self-centered time periods. The inwardness dimension consists of items indicating that inner states, such as meaning, harmony, peace, gladness, compassion, being at peace with oneself, and feeling strong-willed, are experienced more during time appropriation periods. Examples from this dimension include "I feel in touch with the 'real me' at times when I feel a sense of belonging to myself" and "I search for the meaning of what I do at times when I feel a piece of myself."

The scale is scored in 5-point Likert format (1 = strongly disagree, 5 = strongly agree). Comprehensive analyses and findings related to the scale's validity and reliability are presented in the results and discussion section. (α = 0.812 for self-discipline, α = 0.817 for spontaneity, and α = 0.868 for inwardness).

Self-regulation This is a sub-dimension of the Turkish Character Strengths Inventory Adult Form. All sub-dimensions and factors of the scale can be utilized independently, or the entire instrument can function as an inventory. This sub-dimension, which encompasses the ability to control one's feelings and actions, practice self-discipline, and regulate desires and emotions, comprises 13 items. Developed by Korkmaz et al. (2021) based on the Character Strengths Classification proposed by Peterson and Seligman (2004), the measurement tool consists of 24 sub-dimensions and 6 factors, presented in a 5-point Likert format (1 = strongly disagree, 5 = strongly agree). Cronbach's alpha coefficient was 0.79. In our study, α = 0.710. This scale was selected for criterion-related validity, and a positive correlation with the time-appropriation scale is anticipated. We assume that individuals who are more time appropriated exhibit greater control over their daily lives. The rationale for choosing this scale lies in its theoretical alignment with the construct being measured. Specifically, self-regulation, as conceptualized in this sub-dimension, shares conceptual overlap with time-appropriation, as both involve an individual's capacity to organize and manage actions effectively within temporal constraints. By examining the degree of convergence between these measures, we aim to establish criterion-related validity. Examples from the scale include "I surrender to my wishes" and "I fulfill my duties at the last minute."

The satisfaction with life scale This scale, developed by Diener et al. (1985), employs a 7-point Likert format (1 = strongly disagree, 7 = strongly agree) to assess global life satisfaction using five items related to the quality of life. The scale's internal consistency reliability coefficient, adapted into Turkish by Durak et al. (2010), was 0.81. In our study, it is 0.809. The scale was chosen for criterion-related validity, and a positive correlation with the time appropriation scale was anticipated. Life satisfaction, a central construct in well-being research, is conceptually linked to how individuals appropriate and perceive their time use, making the scale theoretically aligned with the constructs measured in this study. We expect that individuals who have more time appropriation will report higher life satisfaction. Examples from the scale include "The conditions of my life are excellent." and "I am satisfied with my life."

Turkish subjective happiness scale Developed by Lyubomirsky and Lepper (1999) to measure subjective happiness levels, this scale was adapted into Turkish by Doğan and Totan (2013). The scale consisting of 4 items is unidimensional. Its internal consistency reliability coefficient,

prepared in a 7-point Likert format, was 0.70. In our study, $\alpha = 0.696$. The scale was used for criterion-related validity measurement. We anticipate that individuals who appropriated time will report high subjective happiness perceptions. The theoretical underpinning aligns happiness with effective time use, as subjective happiness often reflects an individual's sense of autonomy and balance in life, which are influenced by time appropriation. Examples from the scale include "In general, I consider myself: 1 = not a very happy person; 7 = a very happy person" and "Compared to most of my peers, I consider myself: 1 = less happy; 7 = more happy."

Authenticity scale This 12-item scale, developed by Wood and colleagues (2008), measures the authenticity levels of individuals and comprises three sub-dimensions: self-alienation, accepting external influence and authentic living. Scored between 1 and 7 (1 = does not describe me at all; 7 = describes me very well) the Turkish adaptation was conducted by İlhan and Özdemir (2013). In our study, $\alpha = 0.786$ for self-alienation, $\alpha = 0.826$ for accepting external influence, $\alpha = 0.610$ for authentic living, and $\alpha = 0.683$ for the overall scale. The scale was used to determine predictive validity. We expect that the sub-dimensions of the time appropriation scale will positively predict the authenticity scale. The authenticity scale was included based on the theoretical connection between time appropriation and authenticity, as effective management of time is believed to enable individuals to align their actions with their core values and reduce external pressures. This rationale is further supported by prior studies linking authenticity to well-being and autonomy, both of which are relevant to time appropriation. Examples from the scale include "I feel alienated from myself." and "Other people influence me greatly."

The meaning in life questionnaire The scale, developed by Steger and colleagues (2006) to assess individuals' perceptions of the meaning of life, was adapted into Turkish by Akın and Taş (2015). Prepared in a 7-point Likert format (1 = absolutely untrue, 7 = absolutely true), the Cronbach's alpha coefficients for the two-dimensional scale are 0.77 for the presence and 0.83 for the search subscale. In our study, it is 0.838 for presence and 0.842 for search. It will be discussed in the context of predictive validity. We expect that the sub-dimensions of the time appropriation scale will positively predict the ability to master the meaning of life. Time appropriation is hypothesized to contribute to an individual's sense of purpose and clarity in life, aligning with the presence dimension of meaning in life. Additionally, the search dimension is relevant as it reflects proactive engagement with time use, which is a key component of the studied construct. Examples from the scale include "I understand my life's meaning" and "My life has a clear sense of purpose."

Socio-demographic information form This form includes questions, prepared by the first and third authors, to collect information on participants' age, gender, income, education, religious affiliation, and political views.

Findings

Multivariate normality was assessed using Mahalanobis distance. Three participants were excluded: two with a z value above 4 and one with a person-fit index value of 2.98 (Ferrando et al., 2016). Confirmatory factor analysis was conducted separately for each factor in the scale.[3]

For the self-discipline dimension of the time appropriation scale, inter-item correlations showed no multicollinearity. The initial fit indices for the factor ($\chi 2 = 280.986$, $df = 27$, $\chi 2/df = 10.410$, $p < .001$, $CFI = 0.892$, $TLI = 0.856$; $SRMR = 0.049$, $RMSEA = 0.098$ [0.087, 0.108]) did not meet the desired thresholds. To address this, modifications were made to item 6 and item 8. These were replaced with item 6 and item 9, selected for their content similarity. After these changes, the scale showed acceptable fit indices ($\chi^2 = 124.020$, $df = 25$, $\chi^2/df = 4.961$, $p < .001$, $CFI = 0.932$, $TLI = 0.903$; $SRMR = 0.039$, $RMSEA = 0.080(0.067, 0.091)$). Factor loadings for self-discipline ranged from 0.384 (item 7) to 0.714 (item 3), with reliability indices of $\alpha = 0.812$ and $\omega = 0.823$.

Analysis of the spontaneity dimension showed no high inter-item correlations, so all items were retained for further analysis. To enhance fit indices ($\chi^2 = 212.539$, $df = 20$, $\chi^2/df = 10.626$, $p < .001$, $CFI = 0.916$, $TLI = 0.883$; $SRMR = 0.049$, $RMSEA = 0.099[0.087, 0.111]$), a relationship was established between items 10 and 16. Following this modification, the scale demonstrated improved acceptability ($\chi^2 = 89.523$, $df = 19$, $\chi^2/df = 4.712$, $p < .001$, $CFI = 0.965$, $TLI = 0.948$; $SRMR = 0.033$, $RMSEA = 0.065(0.053, 0.079)$). Factor loadings for spontaneity ranged from 0.402 (item 10) to 0.758 (item 14), with reliability indices of $\alpha = 0.817$ and $\omega = 0.826$.

In the inwardness dimension, items 23 and 24 had a high correlation (0.790, $p < .001$). Despite their strong factor loadings, item 23 was excluded based on the analysis ($\lambda_{23} = 0.681$, $\lambda_{24} = 0.704$). To improve fit indices ($\chi^2 = 432.995$, $df = 44$, $\chi^2/df = 9.841$, $p < .001$, $CFI = 0.895$, $TLI = 0.869$; $SRMR = 0.049$, $RMSEA = 0.095[0.087, 0.103]$),

[3] *CFI* and *TLI* values greater than 0.80, and *RMSEA* value less than 0.10, are acceptable limits of fit (Browne & Cudeck, 1993; Garson, 2006; Kline, 2015). Additionally, *SRMR* value should be less than 0.08, and the norm-squared ($\chi 2/sd$) value should be less than 5 (Kline, 2015).

Table 2 Confirmatory factor analysis and item analysis solution for time appropriation scale

Self-discipline	*L*	λ	R^2	*SE*	*z*	*r*	Δα
Item 1	0.460	0.475	0.226	0.032	14.439*	0.418	0.804
Item 2	0.575	0.637	0.406	0.028	20.434*	0.552	0.802
Item 3	0.648	0.668	0.447	0.030	21.576*	0.549	0.801
Item 4	0.642	0.714	0.510	0.027	23.565*	0.590	0.796
Item 5	0.572	0.690	0.476	0.025	22.532*	0.614	0.794
Item 6	0.538	0.479	0.230	0.037	14.370*	0.497	0.809
Item 7	0.471	0.384	0.147	0.041	11.378*	0.367	0.823
Item 8	0.538	0.569	0.324	0.030	17.711*	0.538	0.804
Item 9	0.526	0.535	0.286	0.032	16.463*	0.536	0.805
Spontaneity	*L*	*λ*	R^2	*SE*	*z*	*r*	*Δα*
Item 10	0.439	0.402	0.116	0.036	12.084*	0.436	0.811
Item 11	0.466	0.404	0.163	0.038	12.174*	0.394	0.818
Item 12	0.664	0.601	0.362	0.035	19.255*	0.547	0.794
Item 13	0.719	0.747	0.558	0.028	25.534*	0.617	0.785
Item 14	0.684	0.758	0.575	0.026	26.031*	0.625	0.785
Item 15	0.664	0.713	0.509	0.027	23.993*	0.598	0.788
Item 16	0.501	0.492	0.242	0.033	15.155*	0.520	0.798
Item 17	0.656	0.649	0.421	0.031	21.164*	0.595	0.787
Inwardness	*L*	*λ*	R^2	*SE*	*z*	*r*	*Δα*
Item 18	0.570	0.495	0.245	0.037	15.583*	0.472	0.864
Item 19	0.530	0.475	0.225	0.036	14.856*	0.467	0.864
Item 20	0.643	0.610	0.373	0.032	20.003*	0.583	0.856
Item 21	0.549	0.592	0.351	0.029	19.194*	0.573	0.857
Item 22	0.664	0.646	0.417	0.031	21.439*	0.614	0.854
Item 24	0.696	0.642	0.412	0.033	21.312*	0.606	0.854
Item 25	0.544	0.497	0.247	0.035	15.669*	0.464	0.864
Item 26	0.786	0.722	0.521	0.032	24.888*	0.646	0.851
Item 27	0.736	0.726	0.528	0.029	25.086*	0.655	0.851
Item 28	0.726	0.653	0.426	0.033	21.785*	0.587	0.855
Item 29	0.693	0.662	0.438	0.031	22.170*	0.602	0.855

L Factor loading, *λ* Standardized factor loading, *SE* Standard error, *r* Item total correlation, *Δα* Alpha if item deleted

*$p<.001$

items 21 and 22 were correlated, yielding satisfactory values ($\chi^2=204.252$, $df=43$, $\chi^2/df=4.750$, $p<.001$, $CFI=0.929$, $TLI=0.910$; $SRMR=0.043$, $RMSEA=0.078(0.070, 0.087)$). Factor loadings for inwardness ranged from 0.475 (item 19) to 0.726 (item 27), with reliability values of $\alpha=0.868$ and $\omega=0.871$ (Table 2).

The relationships between latent factors (scores calculated with latent variable functions) in the model with covariance are statistically significant. The highest correlation was between inwardness and spontaneity ($r=.842$, $p<.001$) and the lowest correlation was between self-discipline and C ($r=.720$, $p<.001$). On the other hand, the observed score (score calculated with total score) correlations are between 0.618 (self-discipline and inwardness) and 0.698 (spontaneity and inwardness).

Subsequently, an assessment was conducted to determine whether the scale effectively measured a general 'time' variable through second-order factor analysis. A satisfactory fit was achieved, evidenced by $\chi^2=1485.717$, $df=343$, $\chi^2/df=4.312$, $p<.001$, $CFI=0.889$, $TLI=0.878$; $SRMR=0.048$, $RMSEA=0.058(0.055, 0.061)$. The reliability indices further supported the robustness of the measurement ($\alpha=0.924$; $\omega=0.910$) (see Table 3).

Table 3 Second order factor solution

	L	λ	R^2	SE	z
Self-discipline	1.420	0.818	0.668	0.098	14.476*
Spontaneity	3.226	0.955	0.912	0.581	5.551*
Inwardness	1.863	0.881	0.776	0.149	12.484*

L Factor loading, *λ* Standardized factor loading, *SE* Standard error

*$p<.001$

Criterion-related validity findings

Criterion-related validity was assessed using self-regulation, life satisfaction, and subjective happiness scales. Positive correlations were found between these measures and the dimensions of time appropriation. The highest correlation was observed between self-regulation and the total score of

the time appropriation scale, while the lowest correlation was identified between subjective happiness and spontaneity (see Table 4). However, the validity of these findings may be influenced by the reliance on self-report measures, which are subject to biases such as social desirability and response styles. These biases could potentially inflate the observed correlations, necessitating caution in interpreting the strength and direction of these relationships.

Predictive validity findings

Predictive validity was tested using the authenticity scale and the meaning in life questionnaire. Initially, the regression analysis was performed with the authenticity scale. The Durbin-Watson statistic was 1.996, and all tolerance values (>0.10) and VIF values (<10) were within the desired levels. The scale dimensions significantly predicted the level of authenticity (R^2=0.015, F (3, 986)=4.945, p=.002). While self-discipline did not predict the level of authenticity (p=.510), spontaneity negatively predicted it (β = −0.128, t = −2.674, p=.008), and inwardness positively predicted it (β=0.173, t=3.730, p<.001). The total score of the scale did not predict authenticity (p=.517).

As the total score of the meaning in life questionnaire was not considered, it was analyzed at the level of sub-dimensions. In the model assessing the present sub-dimension, the Durbin-Watson statistic was 1.963, and no multicollinearity was detected. According to the model, present was negatively predicted by self-discipline (β = −0.086, t = −1.992, p=.047) and inwardness (β = −0.103, t = −2.237, p=.026), but not by spontaneity (p=.768), in a statistically significant (R^2=0.033, F (3, 986)=11.080, p<.001). When analyzing the sub-dimension of search, the Durbin-Watson statistic was 2.079, and no multicollinearity was observed. It was found that only inwardness (β = −0.207, t = −4.527, p<.001) significantly predicted the search (R^2=0.044, F (3, 986)=14.902, p<.001). Both present (β = −0.076, t = −5.684, p<.001, R^2=0.032, F=32.314, p_F < 0.001) and search (β = −0.081, t = −6.085, p<.001, R^2=0.062, F=37.026, p_F < 0.001) meaning is significantly predicted by the time appropriation scale. Nevertheless, the relatively low R^2 values indicate that the scale dimensions account for a modest proportion of the variance in these outcomes. This suggests that while the time appropriation scale has predictive validity, additional unmeasured variables likely contribute to these constructs.

Discriminant validity findings

Discriminant validity was tested using an independent samples t-test to compare participants from Van city(n=679) in the Eastern Anatolia Region of Türkiye, characterized by more collective tendencies, and Izmir city (n=309) in the Aegean Region of Türkiye, known for more individualistic characteristics.[4] The homogeneity of variance was confirmed for all characteristics (p>.05), and significant differentiation was observed. In each dimension, Van obtained higher scores than Izmir (see Supplementary Material 7). While these findings support the discriminant validity of the scale, it is important to note that cultural and regional differences may also reflect broader contextual factors that extend beyond individualistic-collectivist tendencies.

Test-Retest reliability findings

In this study, the retest was conducted three weeks after the initial test with 94 participants (70 female, 24 male; M=22.160, SD=5.080). The resulting reliability coefficients were as follows: self-discipline, r=.697; spontaneity,

Table 4 Pearson correlation coefficients between scales

	1	2	3	4	5	6	7
1. Self-regulation	1	0.324*	0.255*	0.254*	0.198*	0.230*	0.259*
2. Life satisfaction		1	0.456*	0.198*	0.173*	0.210*	0.223*
3. Subjective happiness			1	0.166*	0.155*	0.144*	0.175*
4. Self-discipline				1	0.648*	0.618*	0.843*
5. Spontaneity					1	0.698*	0.876*
6. Inwardness						1	0.908*
7. Time							1
Mean	45.575	20.236	16.838	35.838	31.928	42.905	110.670
Standard deviation	7.349	6.586	4.582	5.630	5.429	7.709	16.503

*p<.001

[4] When the two cities are analyzed in terms of characteristics such as average household sizes and fertility rates, it can be asserted that Van exhibits more collective characteristics compared to Izmir (Average household size: Van=4.4; Izmir=2.8; Total fertility rates: Van=3.9; Izmir=1.6) (TÜİK, 2022a, b). Moreover, all districts of İzmir are in the top four levels of the development index, making İzmir one of the three most developed provinces in Türkiye. In contrast, only one of Van's 12 districts is in the third level, three are in the fifth level and nine are in the sixth level of the index (SEGE, 2019).

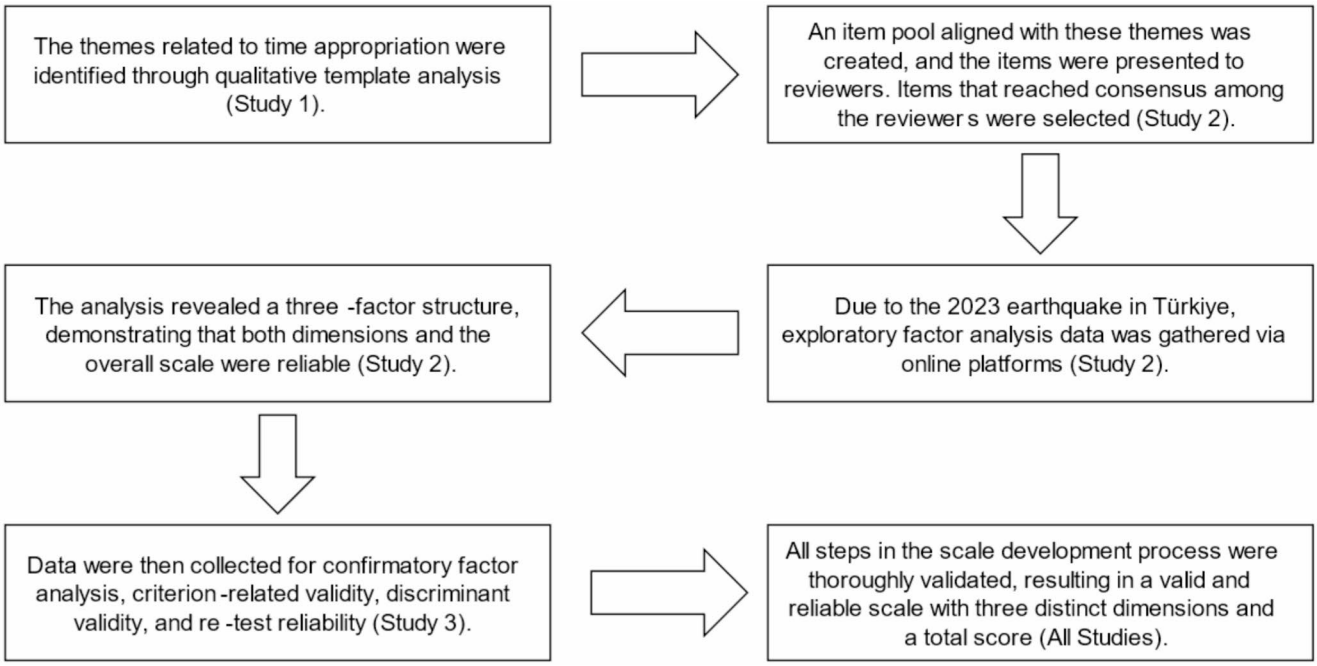

Fig. 2 Diagram of the scale development process

r=.718; inwardness, r=.766; and r=.809 for the overall scale.

Studies 2 and 3 showed the successful development of a valid and reliable time appropriation scale. Reliability analyses confirmed consistent measurement of related constructs, and time-based validity was established through a reliable test-retest study. Confirmatory factor analyses validated the three constructs identified in the exploratory factor analysis, confirming statistical significance for indicators at both first and second-order levels. In criterion-related validity studies, time appropriation scores showed positive correlations with self-regulation, life satisfaction, and subjective happiness. The scale significantly predicted authenticity and meaning in life factors. The scale demonstrated the ability to differentiate between varying levels of time appropriation in collectivist and individualist cultures (see Fig. 2 for a detailed diagram of the scale development process).

General discussion

Our aim was to study time appropriation using three studies. In Study 1, we explored its dimensions and processes in detail. Studies 2 and 3 focused on developing and validating a reliable measurement tool of this concept. Qualitative Study 1 shows that time appropriation covers identification, meaning, emotion, ownership, transformativeness, sociability, and physical environment dimensions. Participants strongly identify with and find unique meanings in their appropriated time, experiencing generally positive emotions. They feel a strong sense of ownership and control, using these periods for psychological renewal and transformation in supportive social and physical environments. Quantitative Studies 2 and 3 illustrated the conversion of the time appropriation concept into a measurement tool with psychometric validity and reliability. The time appropriation scale encompasses key dimensions, including self-discipline, spontaneity, and inwardness. These dimensions measure the level of time appropriation.

When comprehensively examining participants' statements (Study 1) and responses (Studies 2 and 3) regarding the appropriation of time, it becomes evident that they are offering insights into their own selves. This information consistently aligns with the various facets of self, including self-growth and self-awareness. Consequently, one could posit that discussing time appropriation is tantamount to engaging in a profound exploration of one's self. This assertion is crucial, as the qualitative enrichment of both the duration and content of time appropriation can significantly empower individuals, enabling them to not only better discern but also fortify their sense (or states) of self. Consequently, individuals can navigate the challenges in their daily lives more adeptly, resulting in heightened life satisfaction and notably reinforced self-efficacy beliefs.

The three dimensions of the time appropriation scale display a high level of correlation with each other. While this may seem like a statistical challenge, it can be argued that this high correlation is valid for two reasons: (1) psychological phenomena are inherently relational, and (2) these subdimensions are interconnected yet represent different aspects of time appropriation. In personality and social behavior

measurements, it is expected that factors representing the same construct will exhibit high correlations (Klein, 2015; Sumer et al., 1999; van Kampen, 2012). Correlations below 0.90 between factors are acceptable and not problematic. Similar situations arise in personality inventories such as the five factors (Bagby et al., 2005; Somer et al., 2011). For example, in the Turkish version of the 5 Factor Personality Inventory, self-regulation is highly correlated with openness (0.84). Additionally, the correlations among subdimensions (dimensions under factors) range from 0.30 to 0.87. Therefore, these strong correlations suggest that the phenomenon of time appropriation has a holistic structure, distinguished by nuances, rather than constituting a problem.

In collectivist cultures, time may be often seen as a shared resource due to the emphasis on communal values and interdependence, prioritizing time spent with others over individual activities. However, appropriated time is more likely to be an individual experience, and this experience, as shown in the studies whose results are summarized above, is often a phenomenon with positive characteristics for the self. This can be explained by the stronger individualism in certain societies, where personal time is valued as a resource for self-growth, autonomy, and self-expression. Therefore, in relatively more collectivist cultures, appropriated time may be seen as more valuable because it is experienced less. In collectivist societies, where time spent alone may be less common, individuals might perceive their own time as more precious due to its relative scarcity and the cultural emphasis on shared experiences. For this reason, the time appropriation scores may have been higher in the data collected from Van compared to İzmir. This contrast might reflect cultural differences: Van, with more collectivist traits, may value time differently than İzmir, which leans toward individualistic characteristics. However, this issue requires further study.

People who actively appropriate time are more likely to experience heightened awareness and focus during these periods. This suggests that when individuals actively allocate specific time for particular activities or reflections, they are more likely to experience a heightened state of mindfulness during these periods. Since one can experience a kind of 'harmony' or peace with oneself during the time appropriation period, it may allow for more direct monitoring and focus on the 'real' nature of one's cognitions, desires, or emotions. This process of monitoring and focus can positively contribute to one's well-being, life satisfaction, happiness, or character strengths, potentially mediated by mindfulness. To elaborate on this connection, it may be useful to explore the nature of awareness and attention, which are the foundations of mindfulness. Awareness, functioning as a kind of radar, involves being awake and cognizant of oneself such as one's cognitions, motives, desires, emotions, thoughts, dilemmas, weaknesses, and strengths depending on the monitoring of both internal and external environments (Brown, & Ryan, 2003; Kabat-Zinn, 1990). This increased awareness during time appropriation may help individuals reflect more deeply on their experiences, leading to greater fulfillment and purpose. In future studies, these relationships can be explored using the time appropriation scale.

Limitations

Despite the robust findings of this study, several limitations should be acknowledged. First, the sampling process may have introduced biases that limit the generalizability of the findings. The cultural differences observed between Van and İzmir highlight the potential influence of regional and cultural contexts on time appropriation practices. However, the study did not include a sufficiently diverse range of cultural or geographical contexts to make broader generalizations. Second, the study relied on self-reported data, which may be subject to social desirability bias or inaccuracies in participant recall. Future studies may benefit from incorporating longitudinal or observational methods to complement self-report and provide more objective measures of time appropriation. Finally, although the psychometric properties of the time appropriation scale are robust, they have not been tested across a wide range of populations or in different cultural contexts. Expanding the validation process to include more diverse samples may improve the applicability and reliability of the scale in different contexts.

Practical implications and future directions

Our study introduces the concept of *time appropriation*, elucidates its key psychological aspects, and proposes a practical instrument for use in various research contexts. This scale holds significant potential for advancing the understanding of how individuals allocate and experience time. Examining its impact across diverse cultural contexts and specific populations may require a refinement of its definition to account for variations in time experiences shaped by cultural and contextual differences. In particular, the scale can be applied across various domains, including health-related interventions, workplace productivity, and personal development, thereby providing a valuable instrument for enhancing well-being and optimizing time management strategies.

Our study suggests that investigating time appropriation in specific populations can help further delineate its boundaries. For instance, individuals with chronic illnesses may experience time appropriation differently due to the limitations imposed by their conditions. These constraints could

alter their perception of time as a resource and affect their coping mechanisms. Understanding these nuances is critical in comprehending how time appropriation strategies influence mental health, particularly in such populations. Similarly, for Alzheimer's patients, time appropriation could play a pivotal role in fostering a structured environment that supports the recognition of familiar routines, potentially alleviating confusion and promoting emotional stability. In the case of trauma survivors, examining the role of spontaneity, self-discipline and inwardness in time appropriation could reveal its therapeutic potential in helping individuals regain control and experience a sense of autonomy, which is crucial for emotional recovery.

Expanding on the practical applications of the time appropriation scale, it can be applied in everyday contexts to enhance both productivity and well-being. In work environments, for example, the scale can guide the structuring of tasks that align with employees' preferred times for heightened focus, creativity, or relaxation, thereby promoting job satisfaction and productivity. Moreover, the negative to moderate relationship between authenticity and job alienation (Balim, 2022) underscores the potential of time appropriation to reduce alienation in the workplace, further enhancing workplace dynamics. On a personal development level, the scale can help individuals identify optimal times for growth, enabling them to intentionally allocate time for self-reflection, skill-building, or relaxation. By making these insights actionable, the scale can assist individuals in managing their time more effectively, aligning their personal and professional goals, and enhancing overall life satisfaction and mental health.

Future research could benefit significantly from investigating how time appropriation functions across different cultural contexts. Cross-cultural studies, for instance, could explore whether collectivist societies perceive appropriated time differently from individualistic cultures, where personal autonomy and control over time are more highly emphasized. Additionally, longitudinal studies could offer valuable insights into how individuals' experiences and perceptions of time appropriation evolve throughout the life course, particularly in response to life transitions, such as changes in work status, family roles, or health. Such research would deepen our understanding of whether the psychological benefits of time appropriation such as self-efficacy, life satisfaction, and self-awareness remain stable or fluctuate based on life circumstances. These lines of inquiry would not only validate the robustness of the time appropriation scale across diverse populations but also refine its applicability by accounting for cultural and temporal variations. Ultimately, these investigations could further enhance the scale's utility and its potential to inform interventions aimed at improving individuals' well-being across various domains of life.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s12144-025-07601-9.

Acknowledgements Studies 2 and 3 were conducted as part of the research project titled "Time Appropriation Scale: A Scale Development Study" (Project No: SYD-2023-10543), supported by Van Yuzuncu Yil University, Türkiye. We would like to thank all participants who volunteered in our studies.

Funding Open access funding provided by the Scientific and Technological Research Council of Türkiye (TÜBİTAK).

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of interest The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

Akın, A., & Taş, İ. (2015). Yaşam Anlamı Ölçeği: Geçerlik ve güvenirlik çalışması. *Turkish Studies-International Periodical for the Languages, Literature and History of Turkish or Turkic, 10*(3), 27–36. https://doi.org/10.7827/TurkishStudies.7860

American Psychological Association (2017). *Ethical principles of psychologists and code of conduct*.https://www.apa.org/ethics/code/ethics-code-2017.pdf. Retrieved 1 January 2025.

Aron, A., & Aron, E. (1986). *Love and the expansion of self: Understanding attraction and satisfaction*. Hemisphere.

Aron, A., & Aron, E. N. (1996). Self and self-expansion in relationships. In G. J. O. Fletcher, & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 325–344). Lawrence Erlbaum.

Bagby, R. M., Marshall, M. B., & Georgiades, S. (2005). Dimensional personality traits and the prediction of DSM-IV personality disorder symptom counts in a nonclinical sample. *Journal of Personality Disorders*, *19*(1), 53–67. https://doi.org/10.1521/pedi.19.1.53.62180

Balim, S. (2022). *İşe yabancılaşmanın akademisyen örnekleminde ve ilişki düzenleme kuramı çerçevesinde karma yöntemle incelenmesi (The examination of job alienation in an academic sample using a mixed-methods approach within the framework of relational regulation theory).* [Unpublished PHD Thesis]. Istanbul University.

Bilgin, N. (2013). *Tarih ve kolektif Bellek [History and collective memory]*. Bağlam Yayıncılık.

Brooks, J., Bratley, R., Jones, L., King, N., & Lucock, M. (2020). Expectations and experiences of psychological therapy from the client perspective: A qualitative study. *British Journal of Guidance & Counselling*, *49*(3), 371–381. https://doi.org/10.1080/03069885.2019.1707167

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*(4), 822–848. https://doi.org/10.1037/0022-3514.84.4.822

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Sage.

Brunson, L., Kuo, F. E., & Sullivan, W. C. (2001). Resident appropriation of defensible space in public housing. *Environment and Behavior*, *33*(5), 626–652. https://doi.org/10.1177/00139160121973160

Buja, A., & Eyuboglu, N. (1992). Remarks on parallel analysis. *Multivariate Behavioral Research*, *27*(4), 509–540. https://doi.org/10.1207/s15327906mbr2704_2

Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A., & Conway, A. M. (2009). Happiness unpacked: Positive emotions increase life satisfaction by Building resilience. *Emotion*, *9*(3), 361–368. https://doi.org/10.1037/a0015952

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum. https://doi.org/10.1007/978-1-4899-2271-7

Diaconu-Gherasim, L. R., Mardari, C. R., & Măirean, C. (2023). The relation between time perspectives and well-being: A meta-analysis on research. *Current Psychology*, *42*(7), 5951–5963. https://doi.org/10.1007/s12144-021-01949-4

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D. W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, *97*, 143–156. https://doi.org/10.1007/s11205-009-9493-y

Doğan, T., & Totan, T. (2013). Psychometric properties of Turkish version of the subjective happiness scale. *The Journal of Happiness & Well-Being*, *1*(1), 23–31.

Durak, M., Senol-Durak, E., & Gencoz, T. (2010). Psychometric properties of the satisfaction with life scale among Turkish university students, correctional officers, and elderly adults. *Social Indicators Research*, *99*(3), 413–429. https://doi.org/10.1007/s11205-010-9589-4

Fabrigar, L. R., & Wegener, D. T. (2012). *Exploratory factor analysis.* Oxford University Press. https://doi.org/10.1093/acprof:osobl/9780199734177.001.0001

Fancourt, D., Aughterson, H., Finn, S., Walker, E., & Steptoe, A. (2021). How leisure activities affect health: A narrative review and multi-level theoretical framework of mechanisms of action. *The Lancet Psychiatry*, *8*(4), 329–339. https://doi.org/10.1016/S2215-0366(20)30384-9

Feldman, R. M., & Stall, S. (1994). The politics of space appropriation: A case study of women's struggle for homeplace in Chicago public housing. In I. Altman & A. Churchman (Eds.), *Women and the environment* (pp. 167–199). Plenum Press. https://doi.org/10.1007/978-1-4899-1504-7_7

Ferrando, P. J., Vigil-Colet, A., & Lorenzo-Seva, U. (2016). Practical person-fit assessment with the linear FA model: New developments and a comparative study. *Frontiers in Psychology*, *7*, 1973. https://doi.org/10.3389/fpsyg.2016.01973

Flaherty, M. G. (2002). Making time: Agency and the construction of Temporal experience. *Symbolic Interaction*, *25*(3), 379–388. https://doi.org/10.1525/si.2002.25.3.379

Flaherty, M. G. (2003). Time work: Customizing Temporal experience. *Social Psychology Quarterly*, *66*(1), 17–33. https://doi.org/10.2307/3090138

Flaherty, M. G. (2011). *The textures of time: Agency and Temporal experience*. Temple University.

Flaherty, M. G. (2017). An erotics of time: Toward the cross-cultural study of Temporal experience. *Revista De Antropologia*, *9*(2), 7–27. https://doi.org/10.52426/rau.v9i2(suplemento).215

Garson, G. D. (2006). *Structural equation modeling*. G. David Garson and Statistical Associates Publishing.

Ghasemi, A., & Zahediasl, S. (2012). Normality tests for statistical analysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism*, *10*(2), 486–489. https://doi.org/10.5812/ijem.3505

Göregenli, M. (2021). *Çevre Psikolojisi: İnsan-mekân Ilişkileri [Environmental psychology: Human-space relations]*. Bilgi Üniversitesi Yayınları.

Graumann, C. F. (1976). The concept of appropriation (aneignung) and modes of appropriation of space. In P. Korosec-Serfaty (Ed.), *Proceedings of the 3rd international architectural psychology conference* (pp. 113–125). Louis Pasteur University.

Gwet, K. L. (2014). *Handbook of inter-rater reliability*. Advanced Analytics. https://doi.org/10.20982/tqmp.08.1.p023

Hallgren, K. A. (2012). Computing inter-rater reliability for observational data: An overview and tutorial. *Tutorials in Quantitative Methods for Psychology*, *8*(1). https://doi.org/10.20982/tqmp.08.1.p023

Heidegger, M. (1927/2020). *Varlık ve zaman [Being and time]* (K. Ökten, Trans.). Alfa.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika*, *30*(2), 179–185. https://doi.org/10.1007/BF02289447

İlhan, T., & Özdemir, Y. (2013). Otantiklik Ölçeğinin Türkçe'ye Uyarlanması: Geçerlik ve Güvenirlik Çalışması [Turkish adaptation of the authenticity scale: A study of validity and reliability]. *Türk Psikolojik Danışma Ve Rehberlik Dergisi*, *5*(40), 142–153.

İmamoğlu, O. (1987). An interdependence model of human development. In C. Kagitcibasi (Ed.), *Growth and progress in cross-cultural psychology* (pp. 138–145). Swets North America.

Izquierdo, I., Olea, J., & Abad, F. J. (2014). Exploratory factor analysis in validation studies: Uses and recommendations. *Psicothema*, *26*, 395–400.

JASP Team (2023). *JASP (Version 0.18) [Computer software]*.

Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness.* Delacorte.

Kagitcibasi, C. (1990). Family and socialization in cross-cultural perspective: A model of change. In J. B. Lincoln (Ed.), *Cross-cultural perspectives: Nebraska symposium on motivation 1989* (pp. 135–200). University of Nebraska Press.

Kagitcibasi, C. (1996). *Family and human development across cultures: A view from the other side*. Lawrence Erlbaum.

Kahramanmaraş earthquake of 2023 (2024). In *Britannica*. https://www.britannica.com/event/2023–Turkey–Syria–earthquake

Kimmel, J. (2008). *How do we spend our time? Evidence from the American time use survey*. W.E. Upjohn Institute. https://doi.org/10.17848/9781435667426. for Employment Research.

King, N. (2004). Using templates in the thematic analysis of text. In C. Cassell & G. Symon (Eds.), *Essential guide to qualitative methods in organizational research* (pp. 256–270). Sage. https://doi.org/10.4135/9781446280119.n21

King, N., Brooks, J., & Tabari, S. (2018). Template analysis in business and management research. In M. Ciesielska & D. Jemielniak (Eds.), *Qualitative methodologies in organization studies* (pp. 179–206). Palgrave Macmillan. https://doi.org/10.1007/978-3-319-65442-3_8

Kline, R. B. (2015). *Principles and practice of structural equation modeling.* Guildford Press.

Korkmaz, M., Cömert, G., & Gürlük, Y. O. (2021). *Bireylerin Güçlü Karakter Özelliklerinin Çok Boyutlu Yapısının Sınıflandırılması [Classification of the multidimensional structure of individuals' character strength traits]*. 2018/EDB/011]. Ege University.

Korosec-Serfaty, P. (Ed.). (1976). *Proceedings of the 3rd international architectural psychology conference*. Louis Pasteur University.

Korosec-Serfaty, P. (1984). The home from attic to cellar. *Journal of Environmental Psychology*, *4*(4), 303–321. https://doi.org/10.1016/S0272-4944(84)80002-X

Korosec-Serfaty, P. (1985). Experience and use of the dwelling. In I. Altman & C. M. Werner (Eds.), *Home environments* (pp. 65–87). Plenum Press. https://doi.org/10.1007/978-1-4899-2266-3_3

Li, X., Yu, X., & Lyu, H. (2024). Balanced time perspective and mental health: Mechanisms and theoretical framework. *Advances in Psychological Science*, *32*(1), 138–150. https://doi.org/10.3724/SP.J.1042.2024.00138

Linda, R. C., Gordon, R. G., Randell, C. E., Schmitt, J., & Marvin, H. (2023). *Introduction to statistics in the psychological science*. Open Educational Resources Initiative at the University of Missouri-St. Louis. https://umsystem.pressbooks.pub/isps/front-matter/introduction/

Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, *46*, 137–155. https://doi.org/10.1023/A:1006824100041

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion and motivation. *Psychological Review*, *98*(2), 224–253. https://doi.org/10.1037/0033-295X.98.2.224

Mello, Z. R., & Worrell, F. C. (2014). The past, the present, and the future: A conceptual model of time perspective in adolescence. In *Time perspective theory; Review, research and application: Essays in honor of Philip G. Zimbardo* (pp. 115–129). Springer International Publishing. https://doi.org/10.1007/978-3-319-07368-2_7

Michon, J. A. (1990). Implicit and explicit representations of time. In R. A. Block (Ed.), *Cognitive models of psychological time* (pp. 37–58). Erlbaum.

Nair, N., & Vohra, N. (2010). An exploration of factors predicting work alienation of knowledge workers. *Management Decision, 48*(4), 600–615. https://doi.org/10.1108/00251741011041373

Morval, J., & Judge, P. (2000). Motivation Au travail et appropriation de L'espace. In B. Gangloff (Ed.), *Les compétences professionnelles: Descriptif, mesure et développement* (pp. 127–134). L'Harmattan.

Ökten, K. H. (2021). Varlık ve zaman: Bir okuma rehberi [Being and time: A reading guide] (2nd Ed.). Alfa Yayınları.

Peterson, C., & Seligman, M. E. P. (Eds.). (2004). Introduction. *Character strengths and virtues: A handbook and classification* (Vol. 1, pp. 1–33). American Psychological Association.

Raykov, T., Dimitrov, D. M., von Eye, A., & Marcoulides, G. A. (2013). Interrater agreement evaluation: A latent variable modeling approach. *Educational and Psychological Measurement*, *20*(10), 1–20. https://doi.org/10.1177/0013164412449016

Rioux, L. (2004). Types de sites universitaires et appropriation de L'espace. *Psychologie Canadienne*, *45*(1), 103–110. https://doi.org/10.1037/h0086974

Rioux, L., Scrima, F., & Werner, C. M. (2017). Space appropriation and place attachment: University students create places. *Journal of Environmental Psychology*, *50*, 60–68. https://doi.org/10.1016/j.jenvp.2017.02.003

Rolandsen, U. M. (2011). *Leisure and power in urban China: Everyday life in a Chinese City*. Routledge. https://doi.org/10.4324/9780203818770

Routledge, C., Arndt, J., Wildschut, T., Sedikides, C., Hart, C. M., Juhl, J., Vingerhoets, A. J., & Scholtz, W., W (2011). The past makes the present meaningful: Nostalgia as an existential resource. *Journal of Personality and Social Psychology*, *101*, 638–652. https://doi.org/10.1037/a0024292

Routledge, C., Wildschut, T., Sedikides, C., & Juhl, J. (2013). Nostalgia as a resource for psychological health and well-being. *Social and Personality Psychology Compass*, *7*(11), 808–818. https://doi.org/10.1111/spc3.12070

Ryan, R. M., & Powelson, C. L. (1991). Autonomy and relatedness as fundamental to motivation and education. *The Journal of Experimental Education*, *60*(1), 49–66. https://doi.org/10.1080/00220973.1991.10806579

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78.

Scraton, S. (2007). Leisure. In G. Ritzer (Ed.), *The Blackwell encyclopedia of sociology* (pp. 2588–2592). Blackwell Publishing. https://doi.org/10.1002/9781405165518.wbeosl030

SEGE. (2019). *İlçelerin sosyo-ekonomik Gelişmişlik Sıralaması Araştırması SEGE-2017 [The socio-economic development ranking of districts study: SEGE-2017]*. Kalkınma Ajansları Genel Müdürlüğü Yayını.

Somer, O., Korkmaz, M., & Tatar, A. (2011). *Kuramdan uygulamaya beş faktör kişilik modeli ve beş faktör kişilik envanteri (5FKE) [From theory to practice: Five factor personality model and five factor personality inventory (5FPI)]*. Ege University Press.

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: assessing the presence of and search for meaning in life. *Journal of Counseling Psychology, 53*(1), 80–93. https://doi.org/10.1037/0022-0167.53.1.80

Stoicescu, M., & Flaherty, M. G. (2023). Tinder and time work through the lens of gender: Temporal agency, technology, and intimacy. *Social Psychology Quarterly*, *87*(4). https://doi.org/10.1177/01902725231205860

Sumer, H. C., Sumer, N., Sahin, N., Sahin, N., Demirutku, K., & Eroglu, B. (1999). *Development of personality test battery to be used in officer selection in the Turkish army forces*. Defense Technical Information Center Compilation Part Notice.

Taherdoost, H., Sahibuddin, S., & Jalaliyoon, N. (2020). Exploratory factor analysis: Concepts and theory. *Advances in Applied and Pure Mathematics*, *27*, 375–382.

Tavakoi, M., & Wetzel, A. (2020). Factor analysis: A means for theory and instrument development in support of construct validity. *International Journal of Medicine Education*, *11*, 245–247. https://doi.org/10.5116/ijme.5f96.0f4a

TÜİK (Turkish Statistical Institute) (2022a). *Ortalama hanehalkı büyüklüğü [Average household size]*.https://nip.tuik.gov.tr/?value=OrtalamaHanehalkiBuyuklugu. Retrieved 7 March 2024.

TÜİK (2022b). Doğum [Birth]. https://nip.tuik.gov.tr/?value=Dogum. Retrieved 7 March 2024.

Turkish Psychological Association (2004). The Ethical Code of the Turkish Psychological Association. https://psikolog.org.tr/belgeler/etik-yonetmeligi-qbf8w.pdf. Retrieved 1 December 2024.

van Kampen, D. (2012). The 5-dimensional personality test (5DPT): Relationships with two lexically based instruments and the

validation of the absorption scale. *Journal of Personality Assessment*, *94*(1), 92–101. https://doi.org/10.1080/00223891.2011.627966

Velicer, W. F. (1976). Determining the number of components from the matrix of partial correlations. *Psychometrika*, *41*, 321–327. https://doi.org/10.1007/BF02293557

Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C. (2006). Nostalgia: Content, triggers, functions. *Journal of Personality and Social Psychology*, *91*, 975–993. https://doi.org/10.1037/0022-3514.91.5.975

Wittmann, M., & Paulus, M. P. (2008). Decision making, impulsivity and time perception. *Trends in Cognitive Sciences*, *12*(1), 7–12. https://doi.org/10.1016/j.tics.2007.10.004

Wood, A., Linley, P., Maltby, J., Baliousis, M., & Joseph, S. (2008). The authentic personality: A theoretical and empirical conceptualization and the development of the authenticity scale. *Journal of Counseling Psychology*, *55*, 385–399. https://doi.org/10.1037/0022-0167.55.3.385

Yılmaz, E. (2020). *Varlık ve Zaman'ı Anlamak [Understanding Being and Time]*. Küre Yayınları.

Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, *77*(6), 1271–1288. https://doi.org/10.1037/0022-3514.77.6.1271

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.