#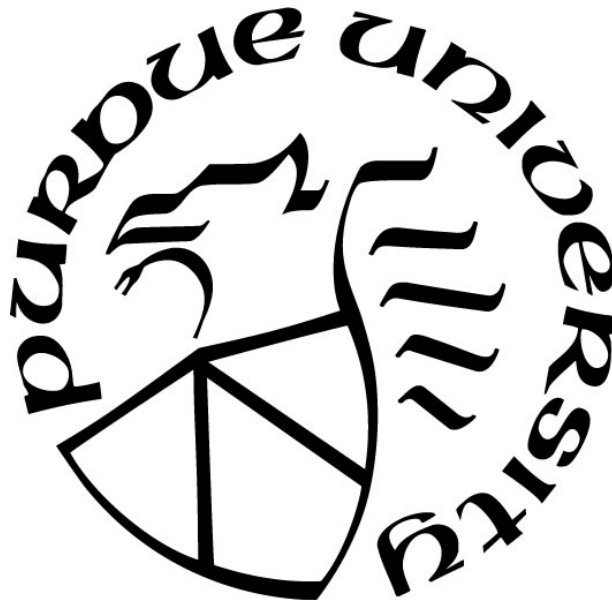 INDIVIDUALS' PREFERENCES IN MULTIPLE GOAL PURSUIT: REVISITING THE CONCEPTUALIZATION AND MEASUREMENT OF MULTITASKING PREFERENCES

by

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A Thesis

Submitted to the Faculty of Purdue University

In Partial Fulfillment of the Requirements for the degree of

Master of Science

Department of Psychological Sciences

West Lafayette, Indiana

May 2022

THE PURDUE UNIVERSITY GRADUATE SCHOOL
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ACKNOWLEDGMENTS

I would like to express my gratitude to my mentor Dr. Franki Kung. His research and guidance inspired me to be passionate about studying multiple goals and multitasking. His unwavering support helped me persist through the process of pursuing this research and the first two years of my graduate school. He has been a great role model to me. I would like to thank the rest of my thesis committee, Dr. Louis Tay and Dr. Carolyn Jagacinski, for their constructive feedback and insightful suggestions that made this research more rigorous. I would also like to thank all the undergraduate research assistants for their contribution to this project and other fellow students in our lab for their feedback. Finally, I thank my family and friends for their enduring love and support, without which I would not have accomplished this work in this difficult time.

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ABSTRACT

With increasing demands in people's work and life, successful self-regulation of multiple goals/tasks becomes important to one's well-being and performance. One individual difference in this process is one's preference for multitasking (i.e., polychronicity), which was found to be important in individuals' psychological experience and performance. However, in terms of our understanding of the nature of this construct, there are at least two issues: 1) most research has assumed that preference for multitasking and preference for sequential pursuit are opposite ends of one continuum, which has not been directly tested; 2) different scales of polychronicity differ on their definitions of multitasking. To address these gaps, the present research seeks to clarify the relationships among individuals' multitasking preferences and to develop a new and improved scale of these individual differences for future research in multitasking. To do so, three studies (N = 1367) were conducted to create and validate a scale that measures three potentially distinct preferences: concurrent preference, switching preference, and sequential preference. These studies empirically tested the relationships among the three preferences. The results were replicated in both goal and task contexts and with different response anchors. Findings suggest that it is questionable to assume multitasking preference and sequential preference are antithetical, while concurrent and switching preferences were highly correlated. I conclude with a discussion of the theoretical implications and future directions for multitasking research.

INTRODUCTION

Juggling multiple goals (tasks, activities, personal projects, etc.) is an experience relatable to many in modern work and life. In general, studies have found adults to hold about 7 to 15 life goals at a time (e.g., Emmons & King, 1988); at work, employees are commonly faced with multiple tasks and deadlines, all competing for resources such as time and energy (e.g., Ballard et al., 2018). Over the past two decades, multiple goal pursuit has become an important area of research in I-O psychology and beyond (e.g., personality, experimental psychology, management, marketing; Kung & Scholer, 2021; Unsworth et al., 2014). Research has suggested that the ways individuals choose to regulate their multiple goals and their success in regulating the conflicts among their goals bear nontrivial consequences on well-being (Gray et al., 2017) and performance (Locke et al., 1994). At the individual level, people vary in the way they prefer to pursue multiple goals (Kung & Scholer, 2020). One related individual difference construct that has been extensively studied in the literature is *multitasking preferences*. It is defined as an individuals' general preference for pursuing multiple goals simultaneously or shifting attention among them, as opposed to the preference for doing one thing at a time (also named and measured as *polychronicity*, as one end of the continuum spectrum, opposite to *monochronicity*).

Understanding the concept and impact of multitasking preferences is critical in organizational psychology as most jobs require a certain degree of multitasking. From restaurant servers (Kapadia & Melwani, 2021) to knowledge workers (Suija-Markova et al., 2020), part of the success in their job is determined by how (and how well) they manage simultaneous goals. The topic of multitasking has been even more timely given the current COVID-19 pandemic, as remote work has created additional challenges of multitasking more frequently (Cao et al., 2021). The extant literature has identified that individual differences in multitasking preferences or polychronicity are associated with various work and non-work outcomes. For example, in a two-goal context (e.g., work goal vs. family goal), higher polychronicity was related to less work interference with family (Korabik et al., 2017) and relatively weaker work-family boundaries (Mittal & Bienstock, 2020). Moreover, work-family conflict had a negative impact on work engagement only for individuals with a low (vs. high) preference for multitasking (Conte et al., 2019). In more general work scenarios where more than two tasks are involved or assumed, multitasking preferences were associated with positive affect and well-being in multitasking

environments (Hecht & Allen, 2005; Poposki & Oswald, 2010), task and job performance (Conte & Jacobs, 2003; Grawitch & Barber, 2013; Sanderson et al., 2013), strategies in negotiations (Tinsley, 2001), firm innovation (Chen, 2020), and so forth. In short, past research has made clear that multitasking preferences might impact many and varied important aspects of work and workers' outcomes.

However, despite this growing body of literature, several challenges exist that limit our understanding of the nature of individuals' multitasking preferences and their implications. For instance, the consequences of individual differences in polychronicity have shown mixed findings. One possible explanation is that the impact of multitasking preferences depends on the specific context (König & Waller, 2010). Although considering situational contingency is useful, one additional explanation I would argue is that studies have been using different scales of polychronicity developed over the years (Bluedorn et al., 1999; Kaufman et al., 1991; Lindquist & Kaufman-Scarborough, 2007; Poposki & Oswald, 2010; Slocombe & Bluedorn, 1999). These scales do not share an identical set of assumptions (e.g., some conflate preferences and beliefs about the value of multitasking). And consequently, even in the same context, the use of different scales may produce varied effects (e.g., Conte et al., 2019). Additionally, as I took a closer look at the scale items, I noticed that what has been considered "multitasking" was not consistent across studies and scales. This issue has further prevented us from differentiating potentially meaningful dimensions in multitasking preferences. Altogether, I argue that the limitations in the literature are the manifestations of two underlying issues: the continuum specification of polychronicity and the definition/scope of multitasking. Next, I will elaborate on the two issues and propose research studies to address these issues.

Clarifying Individuals' Preferences in Multiple Goal Pursuit

The first set of issues involves the continuum specification of the construct (Tay & Jebb, 2018)—whether it is appropriate to assume, and whether we have enough evidence to justify, that the preference for multitasking (polychronicity) and the preference for sequential pursuit (monochronicity) are opposite ends of a continuum spectrum. Through a recent systematic literature review of quantitative studies of polychronicity in the area of human performance and

organizational psychology, [1] I found that in extant research, the two preferences are always assumed to be opposite in the theoretical frameworks or definitions of constructs. They place the two preferences within a single overarching construct and assume the preferences to be bipolar. Consequently, several problematic practices were used when operationalizing the construct in scale items. For instance, most of the scales use items of monochronicity as a reverse item (e.g., "I like to finish one task completely before focusing on anything else."; Poposki & Oswald, 2010). In those cases, a high score of polychronicity would mean a preference for multitasking *and* a dislike of sequential tasking, which is not necessary theoretically. Some people may enjoy both multitasking and sequential pursuit in general. Therefore, using monochronicity as reverse-coded items would potentially contaminate measurement if polychronicity and monochronicity are two different continua.

Moreover, some scales directly compare the two preferences in a single item[2] (e.g., "I would *rather* complete parts of several projects every day *than* complete an entire project", Bluedorn et al., 1999). These items are problematic if researchers want to measure the intensity of multitasking preference and sequential preference because a low score on those items can mean that one has no relative preference for one way over the other. In other words, those who have a similar preference for multitasking and sequential pursuit would disagree with these items and thus have low scores, regardless of their high or low preference for both. More importantly, the simultaneous inclusion of both reverse-coded items and the items that contradict the two preferences makes the concept even more unclear. Additionally, in certain scales (e.g., Lindquist & Kaufman-Scarborough, 2007), researchers only include items that measure preference for multitasking and assume that a low score represents a preference for sequential tasking, which prevents researchers from empirically testing the relationships between polychronicity and monochronicity.

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[1] I conducted a comprehensive literature review to identify published and unpublished studies containing self-report measures of polychronicity or multitasking preferences. First, I conducted a search of online databases (Google Scholar, PsycInfo, Business Source, etc.) using keywords such as *polychronic*, *monochronic*, *multitasking preference*, and so forth, as well as their variants. Initially, 2788 papers were included for screening. I decided to focus on the area of human performance and organizational psychology by including papers that include a measure of polychronicity/multitasking preferences and at least one other construct relevant to performance or organizational or work-related outcomes. After several rounds of screening and coding by research assistants, 179 papers were included and coded for their definitions and dimensionality of polychronicity.

[2] It can also be seen as a 'combinatorial construct', where two constructs with unipolar continua are made opposite to each other and merged into one continuum, combining unipolar and bipolar conceptualizations (Tay & Jebb, 2018).

The second set of issues concerns the definition of multitasking—what exactly do people prefer to do when we say they prefer to multitask? The polychronicity literature has offered mixed answers. A large body of work in this area has defined and operationalized multitasking as a *concurrent* pursuit of multiple tasks or goals. For instance, this view is exemplified in an item of a popular scale that captures polychronicity as the preference "to do two or more activities at the same time" (Lindquist & Kaufman-Scarborough, 2007). In a recent conceptual review of workplace interruptions, multitasking was conceptualized as reflecting "the intention to pursue multiple goals at the same time" (Leroy et al., 2020). Yet, other work took a slightly different approach and operationalized multitasking as "*task switching*," or quick shifting of attention among tasks, based on the rationale that true simultaneity is hard or impossible to be achieved strictly. For example, in the scale developed by Poposki & Oswald (2010), they define multitasking as "switch back and forth between several projects than concentrate my efforts on just one." Although concurrent pursuit and task switching may appear similar, the psychological processes involved in the two approaches can be different. As cognitive psychology literature suggests, behaviorally concurrent pursuit (a.k.a. dual-tasking) and task-switching are differentiable forms of multitasking that have both been extensively studied (Koch et al., 2018). Additionally, a recent meta-analytic review found both common and distinct neural bases for these two forms of multitasking (Worringer et al., 2019), further indicating that even though individuals' mental representations and preferences for these two forms of multitasking are related, they may be unique concepts (Kung & Scholer, 2020). These results suggest two critical insights. First, the distinction between the preferences for concurrent pursuit and task switching might not be a semantic issue but a conceptual one. Second, because none of the extant scales measure both concepts simultaneously, and different scales disagree on the definition of multitasking, the issues of scale deficiency and discrepancy have prevented us from systematically examining the relationship between them and understanding their impacts accurately.

Need for Scale (Re-)development and Investigation

As a result of the lack of clarity on those two issues, no empirical study thus far has systematically examined the interrelations among potential dimensions of multitasking preferences (i.e., concurrent preference, switching preference, and sequential preference). To address these issues requires a scale that allows the ability to measure the three multitasking

preferences independently (as concepts that can be distinguishable) and appropriately (with more precise items that do not conflate multiple concepts). By doing so, this effort has two major theoretical implications in the study of individual differences in multitasking preferences. First, it can clarify the question of what entails a preference for multitasking: does it include both concurrent preference and switching preference, or should they be meaningfully differentiated? It will connect the literature on multitasking, dual-tasking, and task-switching from an individual difference perspective.

Second, with the redeveloped scale, it will be possible to determine whether the traditional assumption that polychronicity and monochronicity are simply the opposite of each other is true and supported by empirical evidence. These two individual differences might have similar but unique antecedents and/or consequences (i.e., nomological networks). This alternative assumption, if true, will alter how the findings of previous studies on polychronicity should be interpreted. For example, some known effects of polychronicity may instead turn out to be driven by a stronger or weaker preference for doing things sequentially (instead of a preference for multitasking). Moreover, when the preferences are measured independently, it is also possible to uncover that each preference has its unique outcomes or predicts specific outcomes more strongly. These possibilities could provide new theoretical and practical implications, enhancing our understanding of multiple goal pursuit and improving recommendations we can make to workers and organizations on increasing performance and well-being.

In sum, the present research seeks to clarify the relationships among individuals' multitasking preferences and to develop a new and improved scale of these individual differences for future research in multitasking. To do so, a series of studies were conducted to create and validate a scale that measures three potentially distinct preferences: concurrent preference, switching preference, and sequential preference. These studies empirically tested the relationships among the three preferences. As an overview, in Study 1, I developed new scale items by revisiting the existing measurements of polychronicity to measure these preferences more purely; exploratory factor analysis was conducted to test the factor structure of the scale. In Study 2, I conducted confirmatory factor analyses. I tested the relationships between these preferences and other related psychological constructs to provide initial evidence for the construct validity of the new scale. Finally, in Study 3, I revised the scale response options and adapted the scale into the

contexts of goal pursuit and task pursuit separately, to generate additional evidence in evaluating the bipolar conceptualization of polychronicity.

STUDY 1: ITEM RECONSTRUCTION AND DIMENSIONALITY EXAMINATION

To empirically test the interrelations among three potential preferences, I would need to rely on non-contaminated scale items that can capture the preferences independently. Therefore, I reconstructed existing scale items from published scales of polychronicity/multitasking preference. In the reconstruction, I followed two principles systematically to generate the new items. First, when an existing item conflated more than one of the three preferences, I reconstructed or broke down the item, so each revised item focused on only one specific preference. For example, for the item "I would rather complete an entire project every day than complete parts of several projects" (Bluedorn et al., 1999), I revised it to create two items: 1) "I like to achieve an entire goal at a time" (sequential preference) and 2) "I prefer to achieve parts of several goals at the same time" (concurrent preference).

Second, as König & Waller (2010) pointed out, some existing polychronicity items have mixed up individuals' preferences with other aspects of multitasking (e.g., beliefs, behavior). For example, in the Polychronic–Monochronic Tendency Scale (Lindquist & Kaufman-Scarborough, 2007), the item "I typically do two or more activities at the same time" measured one's behavioral frequency of multitasking while the item "I prefer to do two or more activities at the same time" measured preference for multitasking. To provide a conceptually cleaner version of a multitasking preferences scale, the items I selected were strictly related to preferences, consistent with the most recent scale development study of polychronicity (Poposki & Oswald, 2010).

Finally, to balance the number of initial items for each preference, I created a couple of items based on their definitions. Overall, this procedure resulted in 21 items—7 items for each of the three preferences: concurrent preference, switching preference, and sequential preference.

Method

Participants and Procedure

Using Amazon's Mturk, I recruited 302 adults in the United States to participate in a survey about multiple goal pursuit, among which 277 passed the attention check question[3] (Kung et al., 2018) and were included in the final analyses (135 females, 141 males; M_{age}=35.5, SD_{age}=11.2; 72.9% White, 2.2% Native American, 15.5% Black, 0.4% Caribbean, 3.6% East Asian, 7.6% Latino, 2.2% South/Southeast Asian, 0.4% Others). Upon giving consent, participants finished the scale of the three preferences. After that, they completed a couple of open-ended questions about their opinions about multitasking and provided basic demographic information.

Measures

Participants finished a scale of 21 items measuring their three preferences[4] (7 items for each): concurrent preference (e.g., "I like to pursue several tasks or goals at the same time"); switching preference (e.g., "I like to shift my attention between multiple goals"); sequential preference (e.g., "I like to achieve an entire goal at a time"). Participants rated the items based on a 7-point Likert scale (from "1 = strongly disagree" to "7 = strongly agree").

Analyses

To determine the factor structure of the scale items (i.e., the interrelations among the three preferences), I conducted exploratory factor analysis (EFA) (Hinkin, 1998). Because the preferences were theoretically expected to correlate with each other, I used the oblique (oblimin) rotation method (Hinkin, 1998). Principal axis method was used for extraction and maximum likelihood method generated the same factor solution. To determine the number of factors, I used parallel analysis (Horn, 1965), which is a Monte-Carlo simulation method that compares the observed eigenvalues with those obtained from random data sets. Kaiser-Guttman Rule (Guttman, 1954; Kaiser, 1960) (eigenvalue greater than one) and scree plot (Cattell, 1966) suggested the same factor solution.

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[3] There was one attention check question in this survey: "Please choose three as a response to this item."
[4] See Appendix A for the full scale and the instruction.

Results and Discussion

EFA resulted in a two-factor solution for the items. Items of concurrent preference and switching preference emerged as one factor (i.e., multitasking preference/polychronicity). Items of sequential preference (i.e., monochronicity) emerged as the other factor. The two factors were negatively correlated with each other ($r = -.66$) and together explained 72.80% of the variance. The eigenvalue for the two factors was 2.12[5]. All of the factor loadings for both factors were larger than 0.77. To shorten the scale and balance the number of items in the two factors for future studies, I selected the 7 items with the highest factor loadings in the polychronicity factor (including 4 for concurrent preference and 3 for switching preference) and maintained the 7 items for monochronicity. A new EFA based on these 14 items still produced a two-factor solution, explaining 74.89% of the variance. The two factors were negatively correlated ($r = -.63$) The internal consistency for each subscale was very high (polychronicity: Cronbach's $\alpha = 0.96$, McDonald's $\omega = 0.96$; monochronicity: Cronbach's $\alpha = 0.94$, McDonald's $\omega = 0.95$). Therefore, I computed composite scores for polychronicity and monochronicity by averaging their items. Descriptive analysis showed that on average people scored higher than the midpoint on both polychronicity ($M = 4.25$, $SD = 1.47$) and monochronicity ($M = 4.51$, $SD = 1.40$).

The findings have two implications. First, polychronicity and monochronicity emerged as two distinct factors and their correlation was $-.66$, suggesting that we might need to revisit the long-held assumption in the literature that they were the opposite ends of one continuum. Despite their overlap, the two constructs can be differentiated and contribute unique variance. Second, the fact that concurrent and switching preferences emerged as one factor suggested that individuals perceive them as two forms of multitasking, in line with the broad conceptualization of multitasking in the literature (Kung & Scholer, 2020; Suija-Markova et al., 2020). These results need to be further replicated in confirmatory analysis, which is the main objective of the subsequent studies.

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[5] The eigenvalue for three factors was 0.35, which was lower than 1, further suggesting that a 3-factor solution might not be ideal.

STUDY 2: DIMENSIONALITY REPLICATION AND INITIAL VALIDATION

In Study 1, I developed a new scale measuring individual differences in multitasking preferences and provided initial evidence that polychronicity and monochronicity were negatively related but conceptually differentiable constructs. In Study 2, I sought to replicate the factor structure of the current scale in two new samples by using confirmatory factor analysis (CFA). Meanwhile, I also tested the relations between the current scale and other constructs with two purposes: 1) to show the convergent/discriminant validity evidence for the current scale; 2) to explore whether the pure measures of multitasking preference and sequential preference would be differently correlated with these constructs. In doing so, I included several relevant variables.

First, while the current scale measures multitasking preference and sequential preference separately, some of the previous scales include items that make direct contradictions between these two preferences in single items (Bluedorn et al., 1999; Poposki & Oswald, 2010). To differentiate those items from the "pure" preferences that the current scale measures, I refer to what those items measure as "relative polychronicity" as they reflect one's relative preference for multitasking *over* sequential pursuit. Theoretically, multitasking preference and sequential preference measured by the current scale should be correlated with relative polychronicity positively and negatively, respectively. The correlations should be at moderate-to-high levels due to the direct conceptual overlaps. To test this hypothesis, I identified and included five items of relative polychronicity from previous scales (Bluedorn et al., 1999; Poposki & Oswald, 2010).

Second, I measured goal orientations, individual differences in dispositions towards developing and demonstrating ability during goal pursuit (Dweck, 1986). Since the introduction of this concept, research has consistently shown the existence and unique roles of three different goal orientations (Vandewalle, 1997): 1) learning goal orientation (LGO): "a desire to develop the self by acquiring new skills, mastering new situations, and improving one's competence"; 2) performance-prove goal orientation (PPGO): "the desire to prove one's competence and to gain favorable judgments about it"; 3) performance-avoid goal orientation (PAGO): "the desire to avoid the disproving of one's competence and to avoid negative judgments about it." Past research argued that multitasking provided more opportunities for learning and growth (favoring learning goals) but also increased task complexity and the chance of failure (adverse to performance-avoid

goals) (Schell & Conte, 2008). Therefore, they predicted and found that polychronicity measured by the scale developed by Bluedorn et al. (1999) was correlated positively with LGO and negatively with PAGO. I aimed to replicate this finding by testing the relationships between multitasking and sequential preferences measured by the current scale and goal orientations. Meanwhile, I explored whether the two preferences would be distinctly related to different goal orientations, which was not answered by the previous study due to their conceptualization of polychronicity.

Third, past research has examined the relationship between polychronicity and performance but showed inconsistent findings (König & Waller, 2010). Therefore, I also tested whether multitasking and sequential preferences measured by the current scale would be related to individuals' performance (i.e., self-evaluations of work and academic performance, undergraduates' grade point average).

Method

Participants and Procedure

To increase the generalizability of the findings, I recruited two independent samples from different sources for this study. Sample A consisted of adults in the United States from Amazon's Mturk. Initially, 200 people participated in the study, 176 of which passed attention check questions[6] and were included in the final analyses (70 females, 105 males; M_{age}=35.3, SD_{age}=11.4; 73.3% White, 1.7% Native American, 18.2% Black, 1.7% Caribbean, 1.7% East Asian, 5.7% Latino, 1.7% Middle Eastern, 0.6% Pacific Islander%, 3.4% South/Southeast Asian). Sample B consisted of undergraduate students in a Midwestern public university in the United States, who participated in the research to get credits for an introductory psychology course. Initially, 474 people participated in the study. 43 individuals failed on attention check questions[7] or were younger than 18 years old and were excluded from the analyses, resulting in 431 individuals in the final sample (233 females, 197 males; M_{age}=18.9, SD_{age}=1.07; 76.8% White, 0.2% Native

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[6] There were two attention check questions in this survey, and participants who failed any of them were excluded from analyses.

[7] There were three attention check questions in this survey, and participants who failed any of them were excluded from analyses.

American, 2.1% Black, 0.2% Caribbean, 11.4% East Asian, 4.4% Latino, 0.7% Middle Eastern, 1.4% Pacific Islander%, 6.3% South/Southeast Asian, 1.2% Others). Both samples finished a survey including the current measure of multitasking and sequential preferences and other relevant scales. Basic demographic information was provided at the end of the surveys.

Measures

  Multitasking and sequential preferences. Multitasking and sequential preferences were measured using the 14-item scale developed in Study 1. Seven items measured multitasking preference (e.g., "I like to pursue several tasks or goals at the same time"; internal consistency in Sample A: Cronbach's α = 0.95, McDonald's ω = 0.95; internal consistency in Sample B: Cronbach's α = 0.89, McDonald's ω = 0.89). Seven items measured sequential preference (e.g., "I like to achieve an entire goal at a time"; internal consistency in Sample A: Cronbach's α = 0.95, McDonald's ω = 0.95; internal consistency in Sample B: Cronbach's α = 0.91, McDonald's ω = 0.91). Participants rated the items based on a 7-point Likert scale (from "1 = strongly disagree" to "7 = strongly agree").

  Relative polychronicity. Relative polychronicity was measured by five items in previous scales of polychronicity that make direct contradictions between these two preferences in single items (Bluedorn et al., 1999; Poposki & Oswald, 2010) (e.g., "I prefer to work on several projects in a day, rather than completing one project and then switching to another"; internal consistency in Sample A: Cronbach's α = 0.92, McDonald's ω = 0.92; internal consistency in Sample B: Cronbach's α = 0.86, McDonald's ω = 0.86). Participants rated the items based on a 7-point Likert scale (from "1 = strongly disagree" to "7 = strongly agree").

  Goal orientations. Goal orientations were measured by the work domain goal orientation scale developed and validated by Vandewalle (1997), including three subscales: 1) learning goal orientation (LGO) (4 items; e.g., "I often look for opportunities to develop new skills and knowledge"; internal consistency in Sample A: Cronbach's α = 0.86, McDonald's ω = 0.86; internal consistency in Sample B: Cronbach's α = 0.85, McDonald's ω = 0.86); 2) performance-prove goal orientation (PPGO) (5 items; e.g., "I'm concerned with showing that I can perform better than my coworkers"; internal consistence in Sample A: Cronbach's α = 0.80, McDonald's

ω = 0.81; internal consistency in Sample B: Cronbach's α = 0.66, McDonald's ω = 0.69); 3) performance-avoid goal orientation (PAGO) (4 items; e.g., "Avoiding a show of low ability is more important to me than learning a new skill."; internal consistency in Sample A: Cronbach's α = 0.87, McDonald's ω = 0.87; internal consistency in Sample B: Cronbach's α = 0.81, McDonald's ω = 0.81). Participants rated the items based on a 7-point Likert scale[8] (from "1 = not at all" to "7 = to a large extent").

Self-report performance. A one-item question adapted from Cleveland & Shore (1992) was used to measure participants' self-evaluation of work (or academic) performance. Participants were asked to use a scale from "0 = consistently way below expectations[9]" to "100 = consistently way exceeding expectations" to rate their subjective work (or academic) performance. For the undergraduate sample (Sample B), students were also asked to self-report their grade point average (GPA). Students' self-evaluation of academic performance was positively correlated with their self-report GPA ($r = .42$, $p < .001$).

Analyses

CFA was conducted to replicate the factor structure that emerged from EFA and confirm the dimensionality of the scale (Hinkin, 1998). Notably, as multitasking preference and sequential preference are theorized to be either two unipolar constructs or two ends of one bipolar continuum (instead of a combinatorial construct), factor analysis (instead of multidimensional scaling) is suitable for testing dimensionality (Tay & Jebb, 2018). I used several standard criteria to assess the goodness of fit of the 2-factor model, including standardized root mean square residual (SRMR) ≤ .08, root mean square error of approximation (RMSEA) ≤ .06, comparative fit index (CFI) ≥ .95 (Hu & Bentler, 1999; Tabachnick & Fidell, 2007).

Because of the high internal consistency of the constructs measured, I calculated the composite score of each variable by averaging the item scores. Bivariate correlations were conducted to examine the relationships between multitasking and sequential preferences and other constructs.

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[8] Note that Vandewalle (1997) used a 6-point response scale in their original study. To standardize the scale anchors and follow convention in later research (e.g., Hirst et al., 2009) I used a 7-point scale for all items.
[9] Of note, one potential issue of this holistic item is its inability to distinguish the nuance between individuals' and others' expectations of themselves.

Results and Discussion

CFA

First, I tested the fit of the 2-factor model in both samples. The model fit in Sample A was good for two of the three criteria: CFI = 0.951, RMSEA = 0.094, SRMR = 0.035. Multitasking preference factor and sequential preference factor were negatively correlated with each other, $r = -.64$. The results replicated the findings in Study 1. In Sample B, however, the model fit of the 2-factor model was poor: CFI = 0.882, RMSEA = 0.116, SRMR = 0.063. The correlation between the multitasking preference factor and sequential preference factor was -.70.

Given the imperfect fit for the 2-factor model, I also examined the goodness of fit for two theoretically possible alternative models: the 1-factor model (with all the items loading on one single factor) and the 3-factor model (with items for concurrent preference, switching preference, and sequential preference as three separate but intercorrelated factors). Chi-square tests were conducted to test the difference in the model fitness between the 2-factor model and the two alternative models.

In Sample A, the 2-factor model fit significantly worse than the 3-factor model (CFI = 0.960, RMSEA = 0.086, SRMR = 0.031), $\chi^2_{diff}(2) = 22.78$, $p < .001$; however, the 2-factor model fit significantly better than the 1-factor model (CFI = 0.688, RMSEA = 0.236, SRMR = 0.126), $\chi^2_{diff}(1) = 636.61$, $p < .001$. In the 3-factor model, the concurrent preference factor and the switching preference factor were positively correlated ($r = .93$) while they were both negatively correlated with the sequential factor (concurrent and sequential: $r = -.62$; switching and sequential: $r = -.65$).

In Sample B, the 2-factor model fit significantly worse than the 3-factor model (CFI = 0.934, RMSEA = 0.089, SRMR = 0.052), $\chi^2_{diff}(2) = 196.20$, $p < .001$; however, the 2-factor model fit significantly better than the 1-factor model (CFI = 0.745, RMSEA = 0.170, SRMR = 0.096), $\chi^2_{diff}(1) = 521.41$, $p < .001$. In the 3-factor model, concurrent preference factor and switching preference factor were positively correlated ($r = .69$) while they were both negatively correlated with sequential factor (concurrent and sequential: $r = -.65$; task-switching and sequential: $r = -.65$).

The bivariate plots of the preferences in Sample A and Sample B are presented in Figure 1 and Figure 2, respectively. I also examined the proportion of participants who scored above the scale midpoint (i.e., higher than 4) of both sequential preference and multitasking preferences. In

sample A, 32.95% scored higher than 4 on both sequential and multitasking preferences; 32.39% scored higher than 4 on both sequential and concurrent preferences; 27.84% scored higher than 4 on both sequential and switching preferences. In sample B, 28.54% scored higher than 4 on both sequential and multitasking preferences; 30.86% scored higher than 4 on both sequential and concurrent preferences; 23.90% scored higher than 4 on both sequential and switching preferences.

So far, factor analytic results from Studies 1 and 2 offer two main implications. First, overall, the 2-factor model fits data reasonably well (at least in two out of the three samples) and is consistently better than the 1-factor model. Meanwhile, people could score higher than the scale midpoint on both sequential and multitasking preferences, contrary to the assumption of the bipolarity measurement model (Tay & Kuykendall, 2017). These results reveal that the traditional assumption of multitasking and sequential preference as one factor/dimension does not receive much empirical support. Second, some evidence also indicates that differentiating concurrent and switching preferences in the model could significantly improve the model fit, although they correlate with each other to a large degree. This indicates that people can have differential preferences for pursuing goals/tasks concurrently and switching between multiple goals/tasks That said, taking evidence across studies into account and given that the 2-factor structure consistently fit data well in the more (nationally) representative samples from MTurk, in the following correlational analyses, I will focus on the results for multitasking and sequential preferences. For transparency, results analyzing concurrent and switching preferences separately are also reported in the correlation matrix.
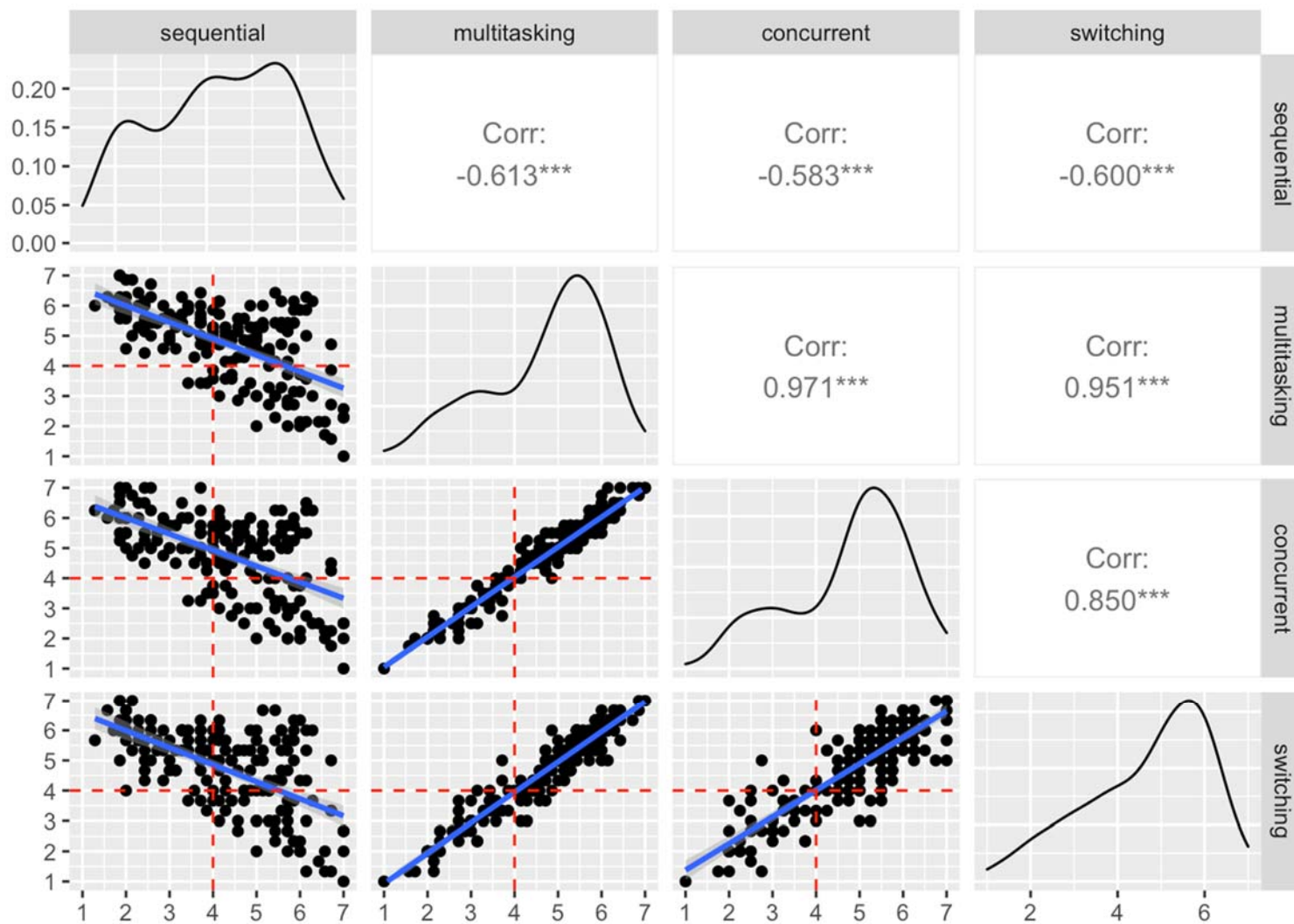
Figure 1. The bivariate plots of the preferences in Sample A of Study 2.
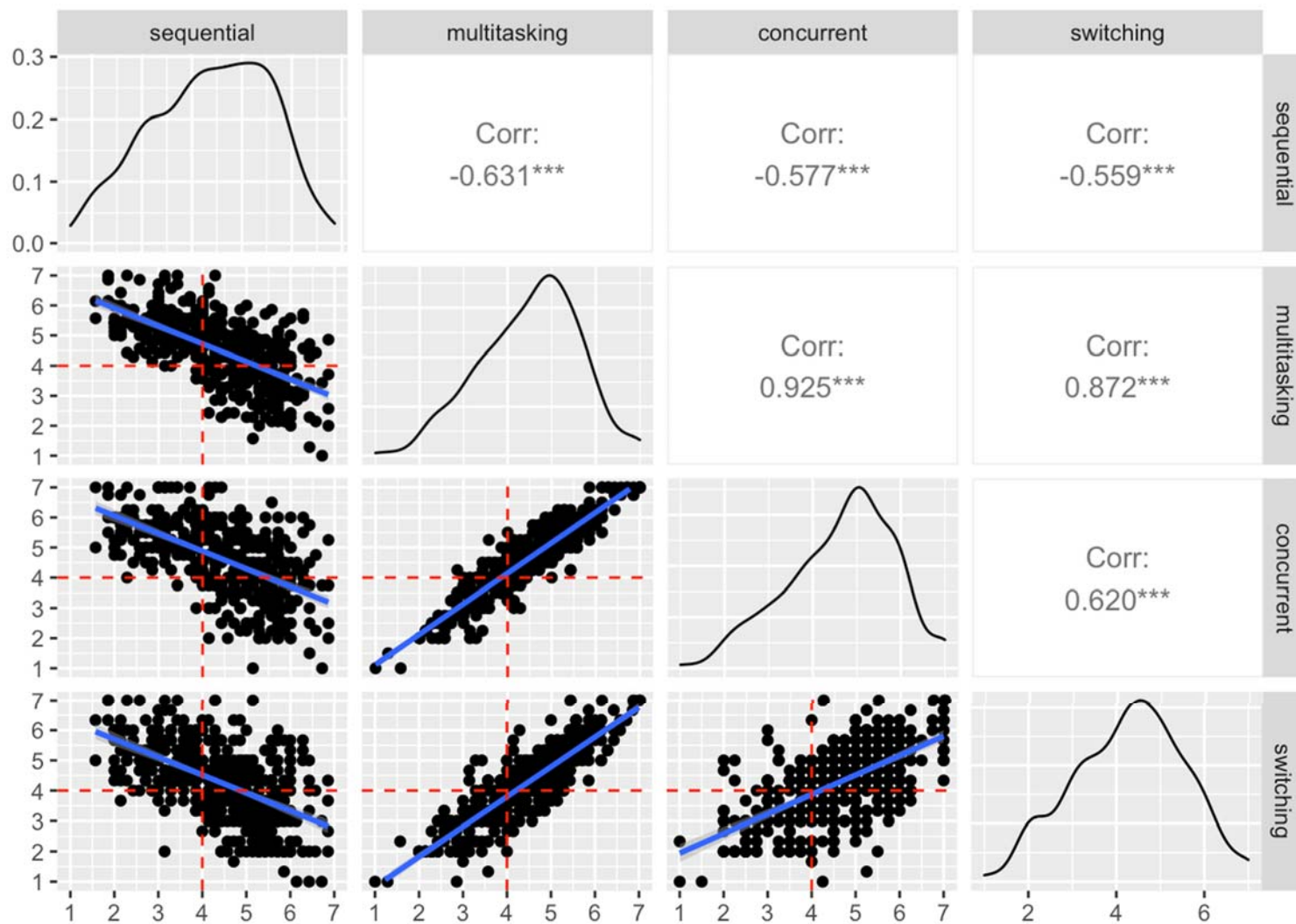
Figure 2. The bivariate plots of the preferences in Sample B of Study 2.

Relations With Other Constructs

The descriptive statistics and correlations (with confidence intervals) are reported in Table 1 (for Sample A) and Table 2 (for Sample B). First, in both samples, multitasking preference and sequential preference had significantly positive and negative correlations with relative polychronicity respectively, showing good convergent validity evidence for my new scale with existing scale items.

Second, in both samples, multitasking preference (but not sequential preference) was consistently significantly correlated with LGO while sequential preference was consistently significantly correlated with PAGO; multitasking preference's relationship with PPGO and PAGO was not consistent in the two samples. Extending past research showing that polychronicity is correlated with LGO and PAGO (Schell & Conte, 2008), the results with my current measures suggest that multitasking and sequential preference might be associated with different goal orientations. Third, in both samples, multitasking preference was positively correlated with one's subjective evaluation of their performance, while sequential preference did not correlate with subjective performance. In the student sample, neither of the preferences was correlated with GPA.

Together, the fact that multitasking and sequential preferences were differentially correlated with goal orientations and subjective performance provided additional evidence that they might have unique conceptual meanings despite their overlap.

Table 1. Means, Standard Deviations, and Correlations With Confidence Intervals (Study 1, Sample A)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. multitasking	4.74	1.32								
2. sequential	4.29	1.48	-.61**							
			[-.70, -.51]							
3. concurrent	4.78	1.35	.97**	-.58**						
			[.96, .98]	[-.67, -.48]						
4. switching	4.69	1.39	.95**	-.60**	.85**					
			[.93, .96]	[-.69, -.50]	[.80, .89]					
5. relative_poly	4.32	1.45	.84**	-.73**	.80**	.82**				
			[.79, .88]	[-.79, -.66]	[.74, .85]	[.76, .86]				
6. LGO	5.14	1.06	.37**	-.15	.39**	.32**	.34**			
			[.24, .49]	[-.29, .00]	[.26, .51]	[.18, .45]	[.20, .47]			
7. PPGO	4.60	1.27	.22**	.06	.21**	.21**	.14	.28**		
			[.08, .36]	[-.09, .21]	[.07, .35]	[.07, .35]	[-.00, .29]	[.14, .41]		
8. PAGO	3.90	1.44	-.06	.33**	-.09	-.02	-.16*	-.32**	.37**	
			[-.21, .09]	[.19, .45]	[-.23, .06]	[-.17, .12]	[-.30, -.01]	[-.45, -.18]	[.24 .49]	
9. performance	75.80	14.39	.18*	-.03	.21**	.14	.10	.47**	.14	-.15
			[.04, .32]	[-.18, .11]	[.06, .34]	[-.01, .28]	[-.05, .25]	[.35, .58]	[-.01, .28]	[-.29, .00]

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014).
* indicates *p* < .05. ** indicates *p* < .01.

Table 2. Means, Standard Deviations, and Correlations With Confidence Intervals (Study 2, Sample B)

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. multitasking	4.50	1.12									
2. sequential	4.37	1.19	-.63**								
			[-.68, -.57]								
3. concurrent	4.66	1.22	.92**	-.58**							
			[.91, .94]	[-.64, -.51]							
4. switching	4.30	1.26	.87**	-.56**	.62**						
			[.85, .89]	[-.62, -.49]	[.56, .67]						
5. relative_poly	3.60	1.21	.54**	-.53**	.44**	.56**					
			[.47, .61]	[-.60, -.46]	[.36, .51]	[.49, .62]					
6. LGO	5.06	0.93	.29**	-.09	.29**	.23**	.08				
			[.21, .38]	[-.19, .00]	[.20, .38]	[.14, .32]	[-.02, .17]				
7. PPGO	4.73	0.97	.07	.09	.10*	.02	.00	.36**			
			[-.02, .17]	[-.01, .18]	[.01, .20]	[-.08, .11]	[-.09, .09]	[.27, .44]			
8. PAGO	3.83	1.17	-.14**	.16**	-.14**	-.12*	.01	-.38**	.21**		
			[-.24, -.05]	[.06, .25]	[-.23, -.04]	[-.22, -.03]	[-.09, .10]	[-.46, -.30]	[.11, .29]		
9. performance	69.36	17.75	.15**	-.04	.15**	.12*	-.03	.27**	.12*	-.13**	
			[.06, .24]	[-.13, .06]	[.06, .24]	[.02, .21]	[-.13, .06]	[.18, .36]	[.03, .22]	[-.22, -.03]	
10. GPA	3.38	0.46	-.05	.09	-.05	-.05	-.13*	.14**	.01	-.02	.42**
			[-.16, .05]	[-.02, .19]	[-.16, .06]	[-.15, .06]	[-.23, -.02]	[.03, .24]	[-.10, .12]	[-.13, .09]	[.33, .50]

Note. M and SD are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014).
* indicates $p < .05$. ** indicates $p < .01$.

STUDY 3: FURTHER REPLICATION WITH A DIFFERENT SET OF SCALE ANCHORS AND GOAL/TASK CONTEXTS

In Studies 1 and 2, I have shown preliminary evidence suggesting that multitasking preference and sequential preference might not necessarily be bipolar. However, to provide more convincing evidence for the construct polarity and its robustness across contexts, two potential limitations remain.

The first limitation that this study seeks to address is related to the use of scale anchors (or response options). In the previous studies, the scale of multitasking and sequential preferences consisted of anchors of agreement (i.e., from "1 = strongly disagree" to "7 = strongly agree"). While this choice of scale anchors was in line with previous scales of polychronicity (e.g., Poposki & Oswald, 2010), these anchors were limited in terms of testing polarity. This is because the agreement anchors can be seen as bipolar to people, according to the literature on continuum specification in psychological measurement (Russell & Carroll, 1999). On the contrary, some have suggested that using anchors of "not at all" to "extremely" are more appropriate for measuring unipolar constructs (Tay & Drasgow, 2012; Tay & Jebb, 2018), because the lowest score reflects the absence of one construct, and the highest score means the strongest existence of that. For this reason, it was commonly used when researchers tested the polarity of constructs like positive affect and negative affect (e.g., Russell & Carroll, 1999). Therefore, in Study 3, I modified the scales' anchors into "1 = not at all" to "5 = extremely".

Second, in Studies 1 and 2 "tasks" and "goals" were interchangeable in the scale instruction and items. I incorporated both terms in the measurement with the hope to make the content space more comprehensive since some previous research suggests that multitasking involves the simultaneous pursuit of goals (Leroy et al., 2020) and tasks can also be seen as one specific form of goals in the goal hierarchy (Unsworth et al., 2014). However, individuals may have different preferences when they are pursuing multiple goals versus multiple tasks, especially when they consider tasks and goals as qualitatively different targets that they are pursuing in life. For example, one person might prefer to pursue multiple goals at the same time but would rather complete their tasks one by one. If that was true, the structure of the scale and the relationship between multitasking and sequential preferences might differ in task and goal contexts. To examine this

possibility empirically, in Study 3 I adapted the scale into two versions (see Appendix B).[10] In the task version, all the targets of pursuit focused on the "task," but no other interchangeable terms; and only the term "goal" was used in the goal version of the scale.

Under these design modifications, the broader objective of Study 3 is to replicate the previous findings of the factor structures and nomological networks of multitasking and sequential preferences using the new versions of the scale. Based on what I found in Studies 1 and 2, I continued to include relative polychronicity (measured by the same five items used in Study 2), goal orientations (Vandewalle, 1997), and people's subjective work performance (measured by the same question used in Study 2). Additionally, I tried to extend the nomological networks by adding new measures that were shown to be also associated with polychronicity by previous research. I included a measure of Big Five personality traits (Rammstedt & John, 2007), including extraversion, agreeableness, conscientiousness, openness, and neuroticism. Past research showed mixed results for the relationships between personality traits and polychronicity (König & Waller, 2010). Among the five dimensions of the Big Five, extraversion was consistently found to be positively correlated with polychronicity in multiple studies. I also included the measure of locomotion, an individual difference in self-regulation "concerned with movement from state to state and with the commitment of psychological resources to initiation and maintenance of goal-related movement (Kruglanski et al., 2000)". Pierro et al. (2013) proposed that multitasking is appealing to individuals with a strong locomotion concern because it affords the simultaneous movement towards several goals. Indeed, they found a positive correlation between individual differences in locomotion and preference for multitasking. In the current study, I aimed to replicate these findings with the new scales and explore whether these effects would differ for multitasking and sequential preferences.

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[10] One additional change to the items is that I modified two original items. The scale used in studies 1 and 2 were examined by two experts in psychometrics and motivation research and these two items were identified as potentially problematic due to the lack of clarity in measuring preference without other confounds: "I feel engaged in what I am doing if I am able to switch between several different goals" and "It makes me uncomfortable when I am not able to attain one goal completely before focusing on another goal".

Method

Participants and Procedure

I recruited a sample of full-time workers in the United States from Prolific to participate in a survey study. Initially, 500 people participated in the study, and 15 people failed attention checks while 2 people indicated in the survey that they were not working full-time. After excluding these participants, 483 individuals were included in the final analyses (231 females, 245 males; M_{age}=36.9, SD_{age}=11.0; 82.2% White, 0.6% Native American, 5.8% Black, 1.0% Caribbean, 6.4% East Asian, 6.0% Latino, 1.0% Middle Eastern, 4.4% South/Southeast Asian, 1.0% others).

After giving consent to the study, participants read an instruction that provided the definitions of both "tasks" and "goals" (Austin & Vancouver, 1996; Poposki & Oswald, 2010) and finished the two scales of their preferences in pursuing multiple goals and tasks (see Appendix B for details). Since the two scales were the same except for the target of pursuit (tasks vs. goals), one might speculate that finishing one of the scales could influence people's responses to the next scale. Therefore, I counterbalanced the order of the two scales to test and rule out potential order effects: participants were randomly assigned to finish either task version first or goal version first.[11] After finishing the two scales, participants also completed other scales. Basic demographic information was provided at the end of the surveys.

Measures

Multitasking and sequential preferences in task and goal pursuit. I adapted the multitasking and sequential preferences scale used in Study 2 into two versions: task pursuit and goal pursuit (see Appendix B). In the task version, seven items measured multitasking preference (e.g., "I like to pursue several tasks at the same time"; Cronbach's α = 0.97, McDonald's ω = 0.97), seven items measured sequential preference (e.g., "I prefer to pursue one task at a time"; Cronbach's α = 0.97, McDonald's ω = 0.97). In the goal version, seven items measured

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[11] Independent sample t-tests showed that none of the goal and task preferences differed significantly between the two groups of people. The intercorrelations among the preferences were also in the same pattern and similar sizes in two groups. Therefore, I concluded that there were no order effects and combined the two groups for all the subsequent analyses.

multitasking preference (e.g., "I like to pursue several goals at the same time"; Cronbach's α = 0.96, McDonald's ω = 0.96), seven items measured sequential preference (e.g., "I prefer to pursue one goal at a time"; Cronbach's α = 0.98, McDonald's ω = 0.98). Participants rated the items based on a 5-point Likert scale (1-very slightly or not at all; 2-a little; 3-moderately; 4-quite a bit; 5-extremely).

Relative polychronicity. Relative polychronicity was measured by the same five items used in Study 2 (Cronbach's α = 0.94, McDonald's ω = 0.94).

Goal orientations. Goal orientations were measured by the same scale (Vandewalle, 1997) used in study 2. All the subscales showed high internal consistency (LGO: Cronbach's α = 0.94, McDonald's ω = 0.95; PPGO: Cronbach's α = 0.88, McDonald's ω = 0.90; PAGO: Cronbach's α = 0.94, McDonald's ω = 0.94).

Self-report performance. Self-evaluation of work performance was measured by the same one-item question adapted from Cleveland & Shore (1992) used in Study 2.

Big Five personality. Due to the limit of survey length, I chose to use the BFI-10 (Rammstedt & John, 2007) to measure personality, including two items for each dimension (extraversion, agreeableness, conscientiousness, openness, neuroticism). Participants rated the items based on a 5-point Likert scale (1 = "strongly disagree", 7 = "strongly agree"). The scale was shown by previous research to have good reliability and validity. Following the past research (Rammstedt & John, 2007), the composite score for each dimension was computed by averaging the two items.

Locomotion. Locomotion was measured by the 12-item scale developed and validated by Kruglanski et al. (2000) (e.g., "I enjoy actively doing things, more than just watching and observing"; Cronbach's α = 0.87, McDonald's ω = 0.88).

Analyses

A series of CFA was conducted to replicate the factor structure with the modified scales. First, I assessed the 2-factor model that conceptualized multitasking and sequential preferences as two correlated factors, to replicate the findings in Studies 1 and 2 with the modified scales. Second, to replicate the finding that it is questionable to conceptualize the two preferences as one factor/continuum, I compared the model fit of the 2-factor model and 1-factor model. Third,

because the 3-factor model emerged as plausible in Study 2, I also examined the fit for the 3-factor model and compared that with the 2-factor model. I conducted all these analyses in both versions of the scale to examine the factor structure in task context and goal context respectively. In line with Study 2, I used several standard criteria to assess the goodness of fit of the models, including standardized root mean square residual (SRMR) ≤ .08, root mean square error of approximation (RMSEA) ≤ .06, comparative fit index (CFI) ≥ .95 (Hu & Bentler, 1999; Tabachnick & Fidell, 2007).

Because of the high internal consistency of the constructs measured, I calculated the composite score of each variable by averaging the item scores. Bivariate correlations were conducted to examine the relationships between multitasking and sequential preferences (in both goal and task contexts) and other constructs.

Results and Discussion

CFA

In the goal context, the overall model fit for the 2-factor model (multitasking preference and sequential preference as two factors) was not good enough to meet all of the criteria (CFI = 0.916, RMSEA = 0.138, SRMR = 0.043). The factor loading for all the items were larger than 0.72. The correlation between the two factors was -.69, a comparable size as observed in Studies 1 and 2. Model comparisons showed that the 2-factor model fit significantly better than the 1-factor model (all the items as one factor) (CFI = 0.693, RMSEA = 0.263, SRMR = 0.142; $\chi^2_{diff}(1) =$ 1861.94, $p < .001$), but worse than the 3-factor model (concurrent preference, switching preference, and sequential preference as three separate but intercorrelated factors) (CFI = 0.965, RMSEA = 0.091, SRMR = 0.025; $\chi^2_{diff}(2) = 776.57$, $p < .001$). In the 3-factor model, the correlation between concurrent preference and switching preference was .80; sequential preference was negatively correlated with concurrent preference ($r = -.68$) and switching preference ($r = -.58$).

The pattern of the factor analytic results was the same in the task context. The overall model fit for the 2-factor model was not good enough to meet all of the criteria (CFI = 0.934, RMSEA = 0.123, SRMR = 0.043). The factor loadings for all the items were larger than 0.72. The correlation between the two factors was -.69, the same as the correlation between multitasking

preference and sequential preference in the goal context. Model comparisons showed that the 2-factor model fit significantly better than the 1-factor model (all the items as one factor) (CFI = 0.696, RMSEA = 0.263, SRMR = 0.131; $\chi^2_{diff}(1) = 2004.66$, $p < .001$), but worse than the 3-factor model (concurrent preference, switching preference, and sequential preference as three separate but intercorrelated factors) (CFI = 0.977, RMSEA = 0.073, SRMR = 0.020; $\chi^2_{diff}(2) = 369.74$, $p < .001$). In the 3-factor model, the correlation between concurrent preference and switching preference was .82; sequential preference was negatively correlated with concurrent preference ($r = -.67$) and switching preference ($r = -.65$). All the correlation coefficients were in similar sizes as in the goal context.

The bivariate plots of the preferences in the goal context and task context are presented in Figure 3 and Figure 4, respectively, and the intercorrelations in both contexts are presented in Table 3. I also examined the proportion of participants who scored above the scale midpoint (i.e., higher than 3) of both sequential preference and multitasking preferences. In the goal context, 7.66% scored higher than 3 on both sequential and multitasking preferences; 8.90% scored higher than 3 on both sequential and concurrent preferences; 7.45% scored higher than 3 on both sequential and switching preferences. In the task context, 9.73% scored higher than 3 on both sequential and multitasking/concurrent/switching preferences.
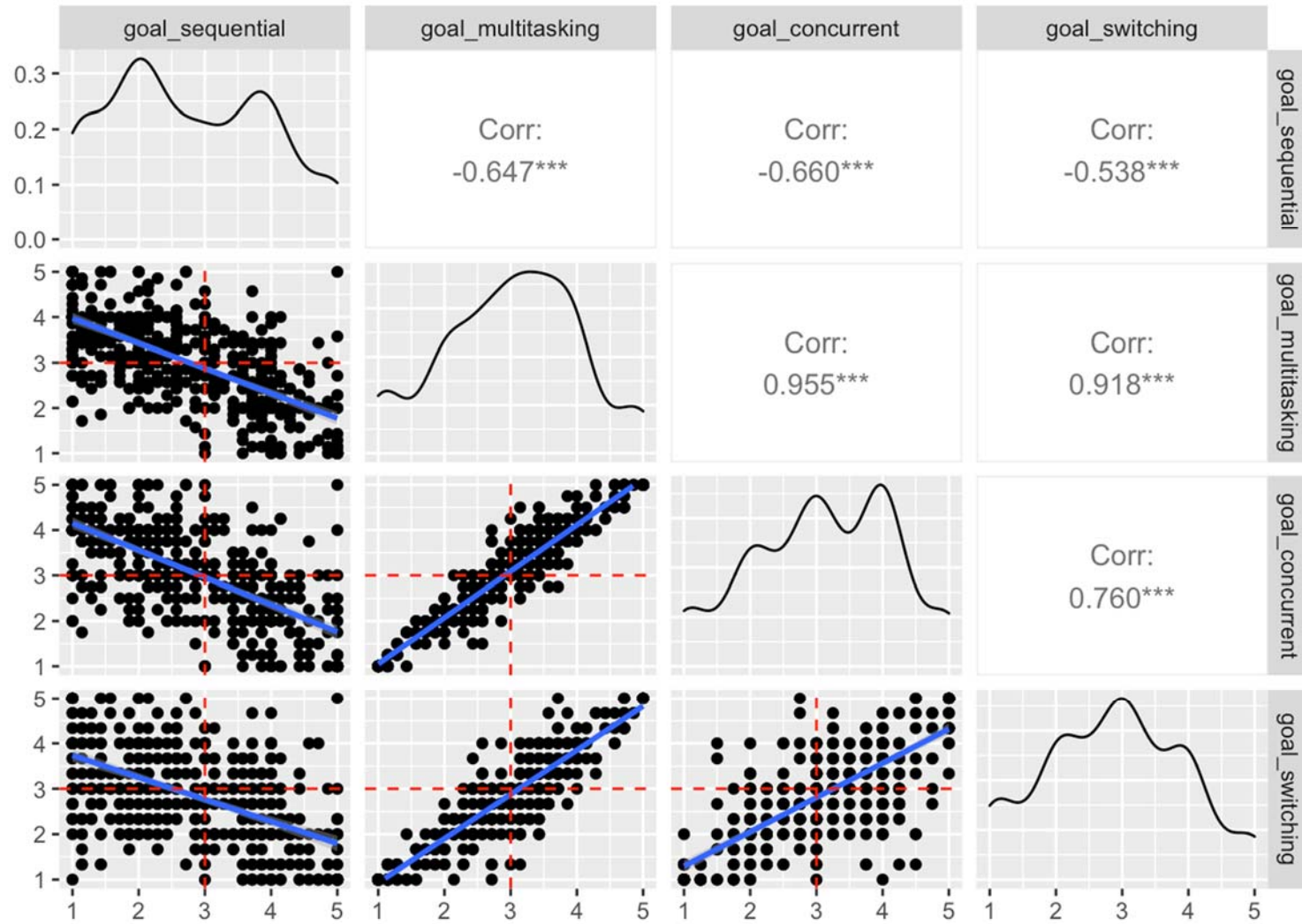
Figure 3. The bivariate plots of the preferences in the goal context of Study 3.
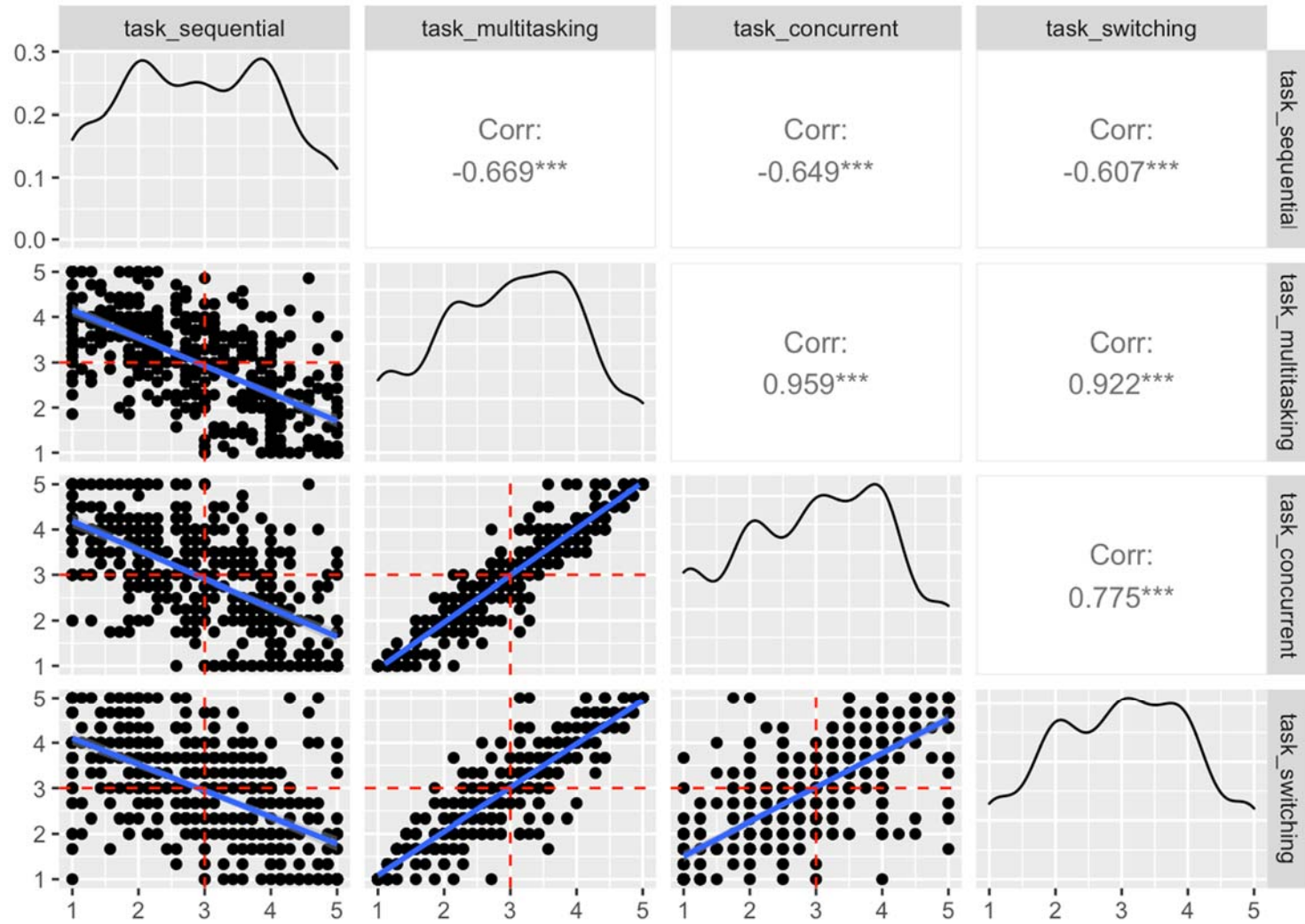
Figure 4. The bivariate plots of the preferences in the task context of Study 3.

Table 3. Means, Standard Deviations, and Correlations With Confidence Intervals (Study 3, Preferences)

Variable	M	SD	1	2	3	4	5	6	7
1. goal_multitasking	3.00	1.01							
2. goal_sequential	2.77	1.19	-.65**						
			[-.70, -.59]						
3. goal_concurrent	3.09	1.07	.96**	-.66**					
			[.95, .96]	[-.71, -.61]					
4. goal_switching	2.88	1.07	.92**	-.54**	.76**				
			[.90, .93]	[-.60, -.47]	[.72, .79]				
5. task_multitasking	2.98	1.07	.68**	-.42**	.63**	.66**			
			[.63, .73]	[-.49, -.34]	[.57, .68]	[.61, .71]			
6. task_sequential	2.91	1.17	-.48**	.71**	-.45**	-.44**	-.67**		
			[-.54, -.40]	[.66, .75]	[-.52, -.38]	[-.51, -.37]	[-.72, -.62]		
7. task_concurrent	2.97	1.15	.65**	-.41**	.63**	.58**	.96**	-.65**	
			[.59, .70]	[-.48, -.33]	[.57, .68]	[.52, .64]	[.95, .97]	[-.70, -.59]	
8. task_switching	3.00	1.12	.64**	-.38**	.54**	.68**	.92**	-.61**	.78**
			[.59, .69]	[-.45, -.30]	[.48, .60]	[.63, .73]	[.91, .93]	[-.66, -.55]	[.74, .81]

Note. M and SD are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation.
* indicates $p < .05$. ** indicates $p < .01$.

Relations With Other Constructs

The descriptive statistics and correlations (with confidence intervals) are reported in Table 4 (for goal preferences and other constructs) and Table 5 (for task preferences and other constructs). The results replicated some of the findings in Study 2. For example, in both goal and task contexts, multitasking preference and sequential preference were positively and negatively correlated with relative polychronicity, showing convergent validity evidence for the scale in both contexts. In terms of goal orientations, in both contexts, although LGO and PAGO were both associated with multitasking and sequential preferences in opposite directions, PPGO was only correlated with multitasking preference but not sequential preference. Also in line with Study 2, only multitasking preference was significantly correlated with subjective performance. These results again suggested that multitasking and sequential preferences might have their unique conceptual meanings and nomological networks even though there is a large overlap. In this study, I also included measures of Big Five personality and locomotion. Results showed that in both goal and task contexts locomotion was positively correlated with multitasking preference and negatively correlated with sequential preference, replicating the finding of a positive correlation between polychronicity and locomotion in previous research (Pierro et al., 2013). As for personality, the results were not always consistent for goal preferences and task preferences. Notably, in both contexts, conscientiousness was correlated with multitasking preference but not sequential preference.

Table 4. Means, Standard Deviations, and Correlations With Confidence Intervals (Study 3, Goal Preferences and Other Constructs)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. goal_multitasking	3.00	1.01										
2. goal_sequential	2.77	1.19	-.65**									
			[-.70, -.59]									
3. goal_concurrent	3.09	1.07	.96**	-.66**								
			[.95, .96]	[-.71, -.61]								
4. goal_switching	2.88	1.07	.92**	-.54**	.76**							
			[.90, .93]	[-.60, -.47]	[.72, .79]							
5. relative_poly	3.93	1.56	.65**	-.65**	.60**	.62**						
			[.59, .70]	[-.70, -.60]	[.54, .66]	[.56, .67]						
6. LGO	5.05	1.20	.42**	-.20**	.44**	.33**	.25**					
			[.34, .49]	[-.28, -.11]	[.37, .51]	[.25, .40]	[.16, .33]					
7. PPGO	4.35	1.29	.23**	-.01	.22**	.22**	.08	.29**				
			[.15, .32]	[-.10, .08]	[.14, .31]	[.13, .30]	[-.01, .17]	[.21, .37]				
8. PAGO	3.69	1.52	-.15**	.22**	-.19**	-.08	-.18**	-.47**	.28**			
			[-.24, -.07]	[.13, .30]	[-.28, -.10]	[-.17, .01]	[-.26, -.09]	[-.54, -.40]	[.20, .36]			
9. performance	77.73	13.79	.23**	-.08	.24**	.17**	.09*	.47**	.25**	-.13**		
			[.14, .31]	[-.17, .00]	[.16, .33]	[.08, .26]	[.00, .18]	[.40, .54]	[.17, .34]	[-.22, -.04]		
10. extraversion	2.73	1.12	.18**	-.14**	.18**	.14**	.16**	.32**	.21**	-.16**	.19**	
			[.09, .26]	[-.22, -.05]	[.09, .27]	[.05, .23]	[.07, .24]	[.24, .40]	[.13, .30]	[-.25, -.07]	[.10, .27]	
11. agreeableness	3.36	0.95	.08	-.03	.08	.06	.07	.17**	-.17**	-.25**	.02	.29**
			[-.01, .17]	[-.12, .06]	[-.01, .17]	[-.03, .15]	[-.02, .15]	[.08, .25]	[-.26, -.09]	[-.34, -.17]	[-.07, .11]	[.21, .37]

Table 4 continued

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
12. conscientiousness	3.94	0.79	.17**	-.06	.21**	.09	.06	.41**	.03	-.22**	.39**	.21**
			[.08, .25]	[-.15, .03]	[.13, .30]	[-.00, .17]	[-.03, .15]	[.33, .48]	[-.06, .12]	[-.31, -.14]	[.31, .47]	[.12, .29]
13. neuroticism	2.81	1.12	-.11*	.05	-.16**	-.03	-.05	-.35**	.11*	.41**	-.21**	-.33**
			[-.20, -.02]	[-.04, .14]	[-.24, -.07]	[-.12, .06]	[-.14, .04]	[-.43, -.27]	[.02, .19]	[.34, .48]	[-.29, -.12]	[-.41, -.25]
14. openness	3.75	0.95	.16**	-.17**	.17**	.13**	.11*	.23**	.06	-.10*	.09	.09
			[.08, .25]	[-.26, -.09]	[.08, .26]	[.04, .22]	[.03, .20]	[.14, .31]	[-.03, .14]	[-.19, -.01]	[-.00, .18]	[-.00, .18]
15. locomotion	3.67	0.63	.35**	-.18**	.39**	.24**	.20**	.63**	.21**	-.30**	.47**	.33**
			[.27, .42]	[-.26, -.09]	[.31, .46]	[.16, .33]	[.11, .28]	[.58, .68]	[.12, .29]	[-.38, -.22]	[.40, .53]	[.25, .41]

Variable	M	SD	11	12	13	14
12. conscientiousness	3.94	0.79	.19**			
			[.10, .27]			
13. neuroticism	2.81	1.12	-.34**	-.36**		
			[-.41, -.26]	[-.44, -.29]		
14. openness	3.75	0.95	-.00	.13**	-.05	
			[-.09, .09]	[.04, .21]	[-.14, .04]	
15. locomotion	3.67	0.63	.21**	.64**	-.34**	.23**
			[.12, .29]	[.58, .69]	[-.42, -.26]	[.14, .31]

Table 4 continued

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Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014).
* indicates *p* < .05. ** indicates *p* < .01.

Table 5. Means, Standard Deviations, and Correlations With Confidence Intervals (Study 3, Task Preferences)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. task_multitasking	2.98	1.07										
2. task_sequential	2.91	1.17	-.67**									
			[-.72, -.62]									
3. task_concurrent	2.97	1.15	.96**	-.65**								
			[.95, .97]	[-.70, -.59]								
4. task_switching	3.00	1.12	.92**	-.61**	.78**							
			[.91, .93]	[-.66, -.55]	[.74, .81]							
5. relative_poly	3.93	1.56	.69**	-.71**	.64**	.67**						
			[.64, .74]	[-.75, -.66]	[.59, .69]	[.62, .72]						
6. LGO	5.05	1.20	.30**	-.11*	.31**	.25**	.25**					
			[.22, .38]	[-.20, -.02]	[.23, .39]	[.16, .33]	[.16, .33]					
7. PPGO	4.35	1.29	.15**	.04	.13**	.16**	.08	.29**				
			[.06, .23]	[-.05, .13]	[.04, .21]	[.07, .25]	[-.01, .17]	[.21, .37]				
8. PAGO	3.69	1.52	-.12**	.20**	-.13**	-.08	-.18**	-.47**	.28**			
			[-.20, -.03]	[.11, .28]	[-.22, -.40]	[-.17, .01]	[-.26, -.09]	[-.54, -.40]	[.20, .36]			
9. performance	77.73	13.79	.14**	-.00	.15**	.11*	.09*	.47**	.25**	-.13**		
			[.05, .23]	[-.09, .09]	[.06, .23]	[.02, .22]	[.00, .18]	[.40, .54]	[.17, .34]	[-.22, -.04]		
10. extraversion	2.73	1.12	.13**	-.13**	.14**	.09	.16**	.32**	.21**	-.16**	.19**	
			[.04, .21]	[-.21, -.04]	[.05, .23]	[-.00, .17]	[.07, .24]	[.24, .40]	[.13, .30]	[-.25, -.07]	[.10, .27]	
11. agreeableness	3.36	0.95	.09*	-.07	.12*	.04	.07	.17**	-.17**	-.25**	.02	.29**
			[.00, .18]	[-.16, .02]	[.03, .20]	[-.05, .13]	[-.02, .15]	[.08, .25]	[-.26, -.09]	[-.34, -.17]	[-.07, .11]	[.21, .37]

Table 5 continued

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
12. conscientiousness	3.94	0.79	.12**	-.03	.14**	.08	.06	.41**	.03	-.22**	.39**	.21**
			[.03, .21]	[-.12, .06]	[.05, .23]	[-.01, .17]	[-.03, .15]	[.33, .48]	[-.06, .12]	[-.31, -.14]	[.31, .47]	[.12, .29]
13. neuroticism	2.81	1.12	-.05	-.01	-.10*	.02	-.05	-.35**	.11**	.41**	-.21**	-.33**
			[-.14, .04]	[-.09, .08]	[-.18, -.01]	[-.06, .11]	[-.14, .04]	[-.43, -.27]	[.02, .19]	[.34, .48]	[-.29, -.12]	[-.41, -.25]
14. openness	3.75	0.95	.03	-.07	.03	.02	.11*	.23**	.06	-.10*	.09	.09
			[-.06, .12]	[-.16, .02]	[-.06, .12]	[-.07, .11]	[.03, .20]	[.14, .31]	[-.03, .14]	[-.19, -.01]	[-.00, .18]	[-.00, .18]
15. locomotion	3.67	0.63	.26**	-.12*	.28**	.19**	.20**	.63**	.21**	-.30**	.47**	.33**
			[.17, .34]	[-.20, -.03]	[.20, .36]	[.11, .28]	[.11, .28]	[.58, .68]	[.12, .29]	[-.38, -.22]	[.40, .53]	[.25, .41]

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Variable	M	SD	11	12	13	14
12. conscientiousness	3.94	0.79	.19**			
			[.10, .27]			
13. neuroticism	2.81	1.12	-.34**	-.36**		
			[-.41, -.26]	[-.44, -.29]		
14. openness	3.75	0.95	-.00	.13**	-.05	
			[-.09, .09]	[.04, .21]	[-.14, .04]	
15. locomotion	3.67	0.63	.21**	.64**	-.34**	.23**
			[.12, .29]	[.58, .69]	[-.42, -.26]	[.14, .31]

Table 5 continued

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Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014).
* indicates $p < .05$. ** indicates $p < .01$.

In sum, the correlation between multitasking preference and sequential preference as well as the pattern of their correlations with other constructs are similar to the findings in Study 2, for results from both task context and goal context. In both contexts, the 2-factor model yielded a significantly better fit than the 1-factor model and some participants scored higher than the scale midpoint on both sequential and multitasking preferences. Together these results suggested that it might be questionable to conceptualize multitasking preference and sequential preference as a unidimensional/bipolar concept instead of two related but conceptually different constructs, no matter whether it is in the context of goal pursuit or task pursuit. Meanwhile, in both contexts, the model fit was significantly better for the 3-factor model than for the 2-factor model. This result replicated some of the findings in Study 2. However, in most cases (except for PAGO and some personality dimensions), the correlations of concurrent preference and switching preference with other constructs were of similar magnitude in both contexts. There was no strong evidence suggesting that separating concurrent preference and switching preference would be practically useful in terms of predicting other related constructs.

Finally, the intercorrelations between goal preferences and task preferences are reported in Table 3. Additionally, supplemental analyses were conducted to further examine the relationships between individuals' goal preferences and task preferences. I conducted factor analyses to test their correlations in three potential models: 1) a 6-factor model, where all the preferences in both goal and task contexts were modeled as interrelated (Figure 5); 2) a 3-factor model, where task/goal concurrent items loaded on one factor, task/goal switching items loaded on the second factor, task/goal sequential items loaded on the third factor, and the three factors were interrelated (Figure 6); 3) a higher-order model, where overall goal preference and overall task preference were two correlated higher-order factors, each of which had three lower-order factors (Figure 7). In all the models, I allowed parallelly worded items in the two scales to covary. The results showed that the 6-factor model fit data best (CFI = 0.970, RMSEA = 0.058, SRMR = 0.027). The correlations between the same preference in two contexts were substantial (goal concurrent and task concurrent: $r = .639$; goal switching and task switching: $r = .727$; goal sequential and task sequential: $r = .714$). In short, while it is possible to empirically distinguish preferences at the task and goal levels, the results overall indicated that individuals tend to have similar preferences when it comes to pursuing multiple goals and multiple tasks.
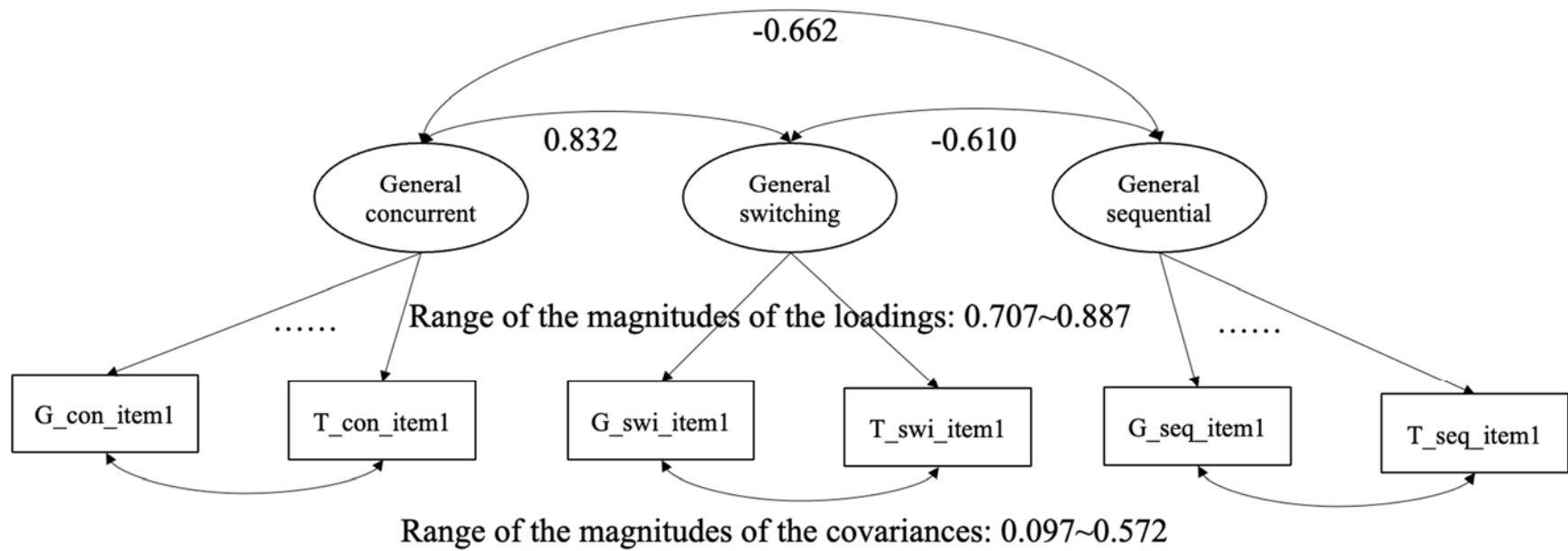
Figure 5. Three-factor model of goal and task preferences examined in Study 3.
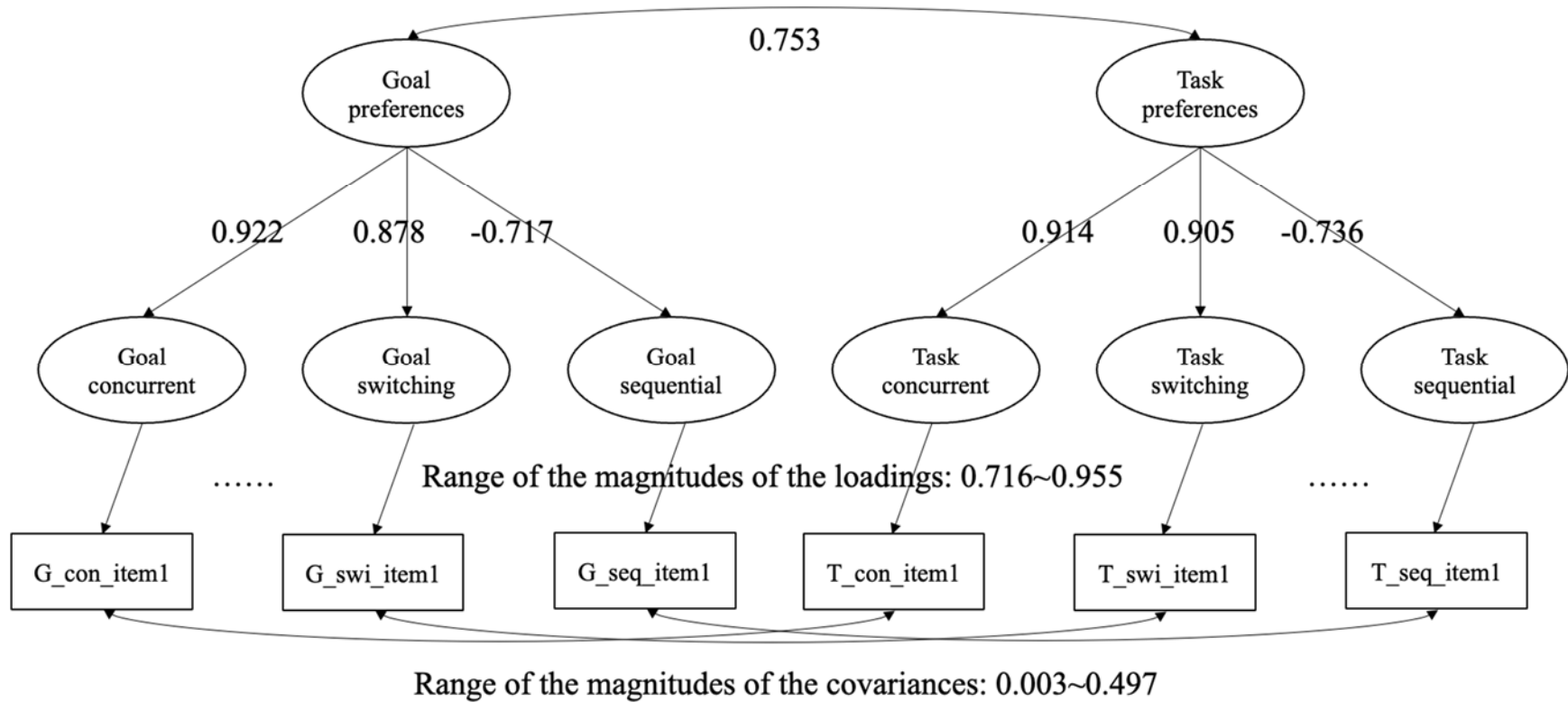
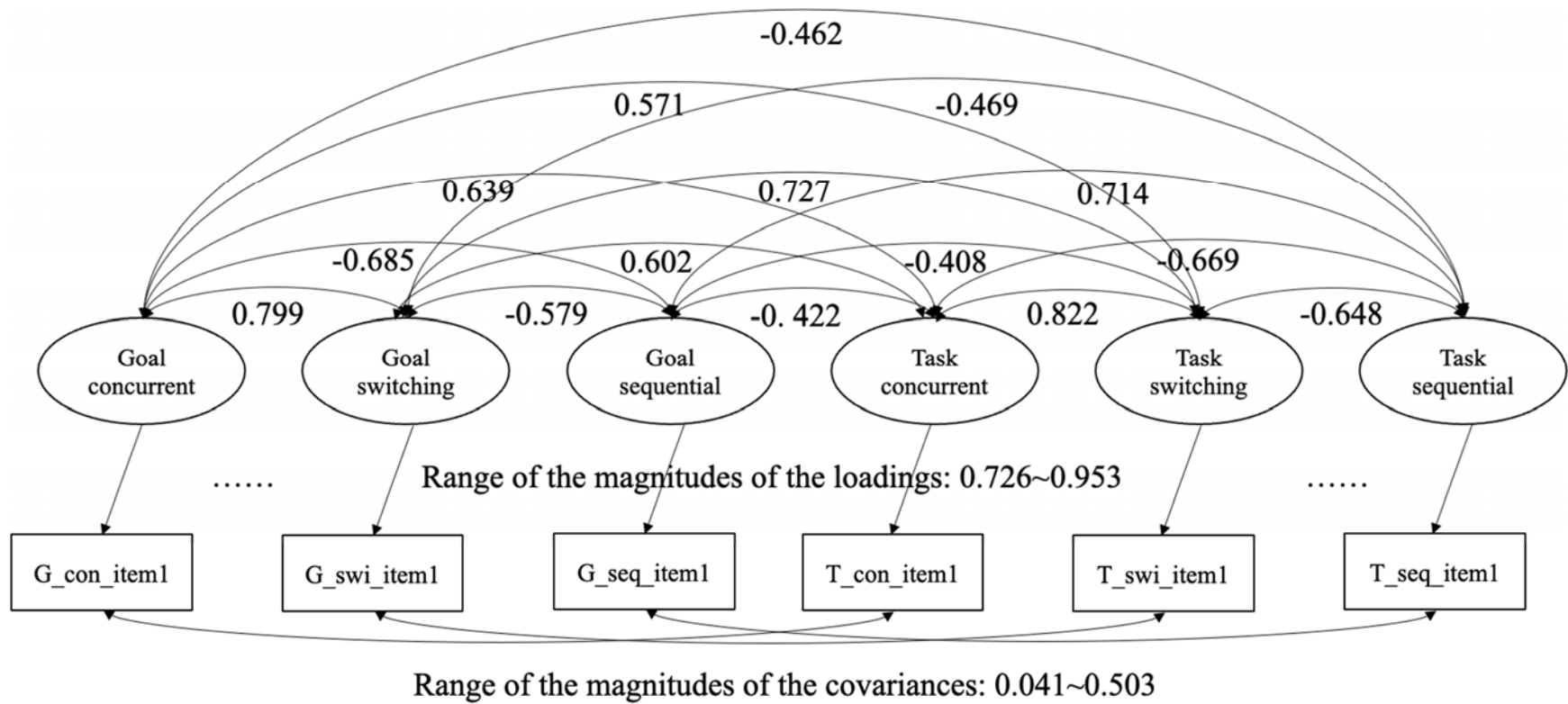Figure 6. Higher-order model of goal and task preferences examined in Study 3.

Figure 7. Six-factor model of goal and task preferences examined in Study 3.

OVERALL DISCUSSION

The current work asks the question of whether individuals' preferences for multitasking and sequential strategy during multiple goal/task pursuit are completely opposite to each other, which has been a longstanding assumption in the polychronicity literature. By revising the items in previous scales of polychronicity (Study 1) and adapting them into both task and goal contexts (Study 3), this research provides a cleaner measure of individual preferences in multiple goal/task pursuit. It offers the opportunity to test the relationship between the preferences in an uncontaminated way. In Studies 1-3, factor analytic results consistently showed that the 2-factor model, that conceptualized multitasking preference and sequential preference as two correlated yet separate factors, was more favorable than treating the two preferences as one factor/dimension. Moreover, multitasking preference and sequential preference were differentially related to some psychological variables that were found to be correlated with polychronicity (Studies 2-3), such as subjective performance and goal orientations. Meanwhile, in some studies, factor analysis favored a 3-factor model that differentiated concurrent preference and switching preference as two factors in parallel with sequential preference. However, they were usually strongly correlated with each other and similarly correlated with other psychological constructs.

Contributions

The current research contributes to the literature on polychronicity and multitasking in different ways. First, to the best of my knowledge, it is the first set of studies that formally examined the dimensionality/polarity of this construct. While previous studies assumed that multitasking preference is the opposite end of sequential preference (e.g., Lindquist & Kaufman-Scarborough, 2007; Poposki & Oswald, 2010), results from the current research provide initial evidence questioning this conceptualization. Although they are not orthogonal, the factor analytic results and nomological networks suggest that the two preferences might have their unique conceptual meanings despite the overlap. Moreover, according to the literature on continuum specificity (Tay & Jebb, 2018; Tay & Kuykendall, 2017), it would be quite rare for participants to score high on two constructs if they were two ends of one bipolar continuum. However, in the current research, it was not uncommon for some participants to score above the mid-points on both

multitasking preference and sequential preference, again suggesting that they might not be as contradictory for individuals as assumed by previous research.

Second, this research also synthesizes different definitions of multitasking in the polychronicity literature. Previous scales defined multitasking as either concurrent pursuit (Bluedorn et al., 1999) or task-switching (Poposki & Oswald, 2010). However, current insights from both behavioral multitasking literature in cognitive psychology (Worringer et al., 2019) and multiple goal pursuit literature in social psychology (Kung & Scholer, 2020) indicated that concurrent pursuit and task-switching might be two forms of multitasking. The current research bridges the gap by showing empirical evidence that at least on the "preference" level, individuals had highly similar (but sometimes differential) preferences for concurrent pursuit and task-switching. Even though more evidence would be needed to better understand whether it is best to conceptualize them as two distinct factors or as indicators of multitasking preference, this research highlights the usefulness of including both in measuring multitasking preference.

Third, although this research studies multitasking from an individual difference perspective by focusing on preferences, it mirrors the most recent efforts in cognitive psychology that challenged the so-called stability-flexibility tradeoff (Geddert & Egner, 2021). Past research assumed that the ability to focus on one task and inhibit distractions (cognitive stability) and the ability to quickly switch between tasks (cognitive flexibility) were opposite endpoints of one continuum. In other words, greater stability comes with lower flexibility and vice versa. However, Geddert & Egner (2021) argued that previous studies inherently assumed this in their experimental measurements and thus prevented us from separating the two abilities and testing their true relation. Indeed, by modifying the experimental settings, they found that the cognitive processes that regulate the two abilities can operate independently. The trade-off does not necessarily exist in some circumstances. Since cognitive flexibility involves pursuing goals/tasks in a concurrent or switching manner while stability requires one to pursue goals/tasks sequentially, the current research adds to their work by suggesting that multitasking and sequential pursuit might not be antithetical on both individual preference level and behavioral ability level.

Finally, this research highlights the importance of better conceptualizing multitasking preferences in the broader literature of organizational science. Although many studies in this field have been incorporating this individual difference in their theory, the interpretations of their findings become ambiguous if multitasking preference and sequential preference are conceptually

different while being measured as one bipolar construct. We are not sure whether some of the effects of polychronicity found in the previous literature should be attributed to a higher (lower) degree of multitasking preference or a lower (higher) degree of sequential preference.

Limitations and Future Directions

Like all studies, the current research also has limitations. First, the findings might not be generalizable to people from different cultural and societal backgrounds. Across the studies, due to the sampling methods, the participants were all based in the United States and were predominantly White. Past research has shown mixed findings on the cultural difference of polychronicity (König & Waller, 2010). The relationship between multitasking preference and sequential preference might vary across cultures. Future research should validate the scale with more diverse samples and replicate the findings in different contexts.

Second, the current research mainly relied on factor analysis to test the dimensionality of the scale. Although it is a suitable tool for dimensionality tests when the construct is bipolar or unipolar (Tay & Jebb, 2018), factor analysis also had its limitations, such as generating spurious factors due to method effects or wording effects when the construct is unidimensional. For example, the findings that the 3-factor model fit significantly better than the 2-factor model should be interpreted with caution because the correlation between concurrent preference and switching preference was quite high and the superiority of the 3-factor model could be attributed to potential wording effects (Brown, 2015). Future research should use other more advanced methods to replicate the dimensionality (e.g., Ferrando & Lorenzo-Seva, 2018; Raykov & Pohl, 2013).

Third, the current measures of individuals' preferences did not specify the "time frame", in line with past research of polychronicity in studying the "general" preferences. However, people pursue their goals and tasks within a wide range of time, from millisecond-level cognitive operations to year-long resolutions. It is an empirical question whether people's preferences for multiple goal/task pursuit might differ depending on different levels of time. Considering that the bipolarity of psychological constructs (such as affect) might depend on the frame of time period (Russell & Carroll, 1999), future research should specify the time frame in measuring those preferences and test their relations.

Fourth, future research should better understand the antecedents and consequences of multitasking and sequential preferences, which is beyond the scope of this research itself. It is an

important direction not only to broaden the nomological networks but also because it could add more evidence for the dimensionality of the construct. For example, experimental methods can be utilized to test whether multitasking and sequential preferences can be independently increased or decreased through certain manipulations of their antecedents (Geddert & Egner, 2021).

Lastly, although the current research suggests that certain people could score low or high on both multitasking and sequential preferences, it is not clear yet the conceptual meanings of these subpopulations. For example, some people have a strong preference for both strategies because they just enjoy pursuing more goals in general. Alternatively, they might have higher flexibility in self-regulation (Bonanno & Burton, 2013), such that the high preferences afford them to leverage the strengths of each strategy in different situations. Future research could ask those questions by testing the antecedents and consequences of having low or high preferences for both strategies.

Conclusion

Individuals have different preferences when they pursue multiple goals or tasks. By revising the assumptions and measures in the polychronicity literature, the present research suggests that multitasking preference and sequential preference might not be completely opposite to each other. They might have their unique conceptual meanings and nomological networks. This research paves the way for future studies to better understand individual differences in multiple goal pursuit and multitasking.

REFERENCES

Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin*, *120*(3), 338-375. https://doi.org/10.1037/0033-2909.120.3.338

Ballard, T., Vancouver, J. B., & Neal, A. (2018). On the pursuit of multiple goals with different deadlines. *Journal of Applied Psychology*, *103*(11), 1242-1264. https://doi.org/10.1037/apl0000304

Bluedorn, A. C., Kalliath, T. J., Strube, M. J., & Martin, G. D. (1999). Polychronicity and the Inventory of Polychronic Values (IPV): The development of an instrument to measure a fundamental dimension of organizational culture. *Journal of Managerial Psychology*, *14*(3-4), 205-230. https://doi.org/10.1108/02683949910263747

Bonanno, G. A., & Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science*, *8*(6), 591-612. https://doi.org/10.1177/1745691613504116

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (Second edition). New York, NY: The Guilford Press.

Cao, H., Lee, C.-J., Iqbal, S., Czerwinski, M., Wong, P. N. Y., Rintel, S., Hecht, B., Teevan, J., & Yang, L. (2021). Large scale analysis of multitasking behavior during remote meetings. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (pp. 1-13). Association for Computing Machinery. https://doi.org/10.1145/3411764.3445243

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, *1*(2), 245-276. https://doi.org/10.1207/s15327906mbr0102_10

Chen, J. (2020). A juggling act: CEO polychronicity and firm innovation. *The Leadership Quarterly*, 101380. https://doi.org/10.1016/j.leaqua.2019.101380

Cleveland, J. N., & Shore, L. M. (1992). Self- and supervisory perspectives on age and work attitudes and performance. *Journal of Applied Psychology*, *77*(4), 469-484. https://doi.org/10.1037/0021-9010.77.4.469

Conte, J. M., Aasen, B., Jacobson, C., O'Loughlin, C., & Toroslu, L. (2019). Investigating relationships among polychronicity, work-family conflict, job satisfaction, and work engagement. *Journal of Managerial Psychology*, *34*(7), 459-473. https://doi.org/10.1108/JMP-01-2018-0046

Conte, J. M., & Jacobs, R. R. (2003). Validity evidence linking polychronicity and Big Five Personality dimensions to absence, lateness, and supervisory performance ratings. *Human Performance*, *16*(2), 107-129. https://doi.org/10.1207/S15327043HUP1602_1

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, *41*(10), 1040-1048. https://doi.org/10.1037/0003-066X.41.10.1040

Emmons, R., & King, L. (1988). Conflict among personal strivings: Immediate and long-term implications for psychological and physical well-being. *Journal of Personality and Social Psychology*, *54*, 1040-1048. https://doi.org/10.1037//0022-3514.54.6.1040

Ferrando, P. J., & Lorenzo-Seva, U. (2018). Assessing the quality and appropriateness of factor solutions and factor score estimates in exploratory item factor analysis. *Educational and Psychological Measurement*, *78*(5), 762780. https://doi.org/10.1177/0013164417719308

Geddert, R., & Egner, T. (2021). *No need to choose: Independent regulation of cognitive stability and flexibility challenges the stability-flexibility tradeoff* [Preprint]. Neuroscience. https://doi.org/10.1101/2021.08.10.455850

Grawitch, M. J., & Barber, L. K. (2013). In search of the relationship between polychronicity and multitasking performance: The importance of trait self-control. *Journal of Individual Differences*, *34*(4), 222-229. https://doi.org/10.1027/1614-0001/a000118

Gray, J. S., Ozer, D. J., & Rosenthal, R. (2017). Goal conflict and psychological well-being: A meta-analysis. *Journal of Research in Personality*, *66*, 27-37. https://doi.org/10.1016/j.jrp.2016.12.003

Guttman, L. (1954). Some necessary conditions for common-factor analysis. *Psychometrika*, *19*(2), 149-161. https://doi.org/10.1007/BF02289162

Hecht, T. D., & Allen, N. J. (2005). Exploring links between polychronicity and well-being from the perspective of person–job fit: Does it matter if you prefer to do only one thing at a time? *Organizational Behavior and Human Decision Processes*, *98*(2), 155-178. https://doi.org/10.1016/j.obhdp.2005.07.004

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*(1), 104-121. https://doi.org/10.1177/109442819800100106

Hirst, G., Van Knippenberg, D., & Zhou, J. (2009). A cross-level perspective on employee creativity: Goal orientation, team learning behavior, and individual creativity. *Academy of Management Journal*, *52*(2), 280-293. https://doi.org/10.5465/AMJ.2009.37308035

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

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, *20*(1), 141-151. https://doi.org/10.1177/001316446002000116

Kapadia, C., & Melwani, S. (2021). More tasks, more ideas: The positive spillover effects of multitasking on subsequent creativity. *Journal of Applied Psychology*, *106*(4), 542-559. pdh. https://doi.org/10.1037/apl0000506

Kaufman, C. F., Lane, P. M., & Lindquist, J. D. (1991). Exploring more than 24 hours a day: A preliminary investigation of polychronic time use. *Journal of Consumer Research*, *18*(3), 392-401. https://doi.org/10.1086/209268

Koch, I., Poljac, E., Müller, H., & Kiesel, A. (2018). Cognitive structure, flexibility, and plasticity in human multitasking—An integrative review of dual-task and task-switching research. *Psychological Bulletin*, *144*(6), 557-583. https://doi.org/10.1037/bul0000144

König, C. J., & Waller, M. J. (2010). Time for reflection: A critical examination of polychronicity. *Human Performance*, *23*(2), 173-190. https://doi.org/10.1080/08959281003621703

Korabik, K., Rhijn, T. van, Ayman, R., Lero, D. S., & Hammer, L. B. (2017). Gender, polychronicity, and the work-family interface: Is a preference for multitasking beneficial? *Community, Work & Family*, *20*(3), 307-326. https://doi.org/10.1080/13668803.2016.1178103

Kruglanski, A. W., Thompson, E. P., Higgins, E. T., Atash, M. N., Pierro, A., Shah, J. Y., & Spiegel, S. (2000). To "do the right thing" or to "just do it": Locomotion and assessment as distinct self-regulatory imperatives. *Journal of Personality and Social Psychology*, *79*(5), 793-815. https://doi.org/10.1037/0022-3514.79.5.793

Kung, F. Y. H., Kwok, N., & Brown, D. J. (2018). Are attention check questions a threat to scale validity? *Applied Psychology*, *67*(2), 264-283. https://doi.org/10.1111/apps.12108

Kung, F. Y. H., & Scholer, A. A. (2020). The pursuit of multiple goals. *Social and Personality Psychology Compass*, *14*(1), e12509. https://doi.org/10.1111/spc3.12509

Leroy, S., Schmidt, A. M., & Madjar, N. (2020). Interruptions and task transitions: Understanding their characteristics, processes, and consequences. *Academy of Management Annals*, *14*(2), 661-694. https://doi.org/10.5465/annals.2017.0146

Lindquist, J. D., & Kaufman-Scarborough, C. (2007). The polychronic-monochronic tendency model: PMTS scale development and validation. *Time & Society*, *16*(2-3), 253-285. https://doi.org/10.1177/0961463X07080270

Locke, E. A., Smith, K. G., Erez, M., Chah, D.-O., & Schaffer, A. (1994). The effects of intra-individual goal conflict on performance. *Journal of Management*, *20*(1), 67-91.

Mittal, R., & Bienstock, J. (2020). Leadership styles and polychronicity: Impact on work-home boundaries and life satisfaction. *Academy of Management Proceedings*, *2020*(1), 13479. https://doi.org/10.5465/AMBPP.2020.13479abstract

Pierro, A., Giacomantonio, M., Pica, G., Kruglanski, A. W., & Higgins, E. T. (2013). Locomotion and the preference for multi-tasking: Implications for well-being. *Motivation and Emotion*, *37*(2), 213-223. https://doi.org/10.1007/s11031-012-9300-y

Poposki, E. M., & Oswald, F. L. (2010). The multitasking preference inventory: Toward an improved measure of individual differences in polychronicity. *Human Performance*, *23*(3), 247-264. https://doi.org/10.1080/08959285.2010.487843

Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, *41*(1), 203-212. https://doi.org/10.1016/j.jrp.2006.02.001

Raykov, T., & Pohl, S. (2013). On studying common factor variance in multiple-component easuring instruments. *Educational and Psychological Measurement*, *73*(2), 191-209. https://doi.org/10.1177/0013164412458673

Russell, J. A., & Carroll, J. M. (1999). On the bipolarity of positive and negative affect. *Psychological Bulletin*, *125*(1), 3-30. https://doi.org/10.1037/0033-2909.125.1.3

Sanderson, K. R., Bruk-Lee, V., Viswesvaran, C., Gutierrez, S., & Kantrowitz, T. (2013). Multitasking: Do preference and ability interact to predict performance at work? *Journal of Occupational and Organizational Psychology*, *86*(4), 556-563. https://doi.org/10.1111/joop.12025

Schell, K. L., & Conte, J. M. (2008). Associations among polychronicity, goal orientation, and error orientation. *Personality and Individual Differences*, *44*(1), 288-298. https://doi.org/10.1016/j.paid.2007.08.009

Slocombe, T. E., & Bluedorn, A. C. (1999). Organizational behavior implications of the congruence between preferred polychronicity and experienced work-unit polychronicity. *Journal of Organizational Behavior*, *20*(1), 75-99. https://doi.org/10.1002/(SICI)1099-1379(199901)20:1<75::AID-JOB872>3.0.CO;2-F

Suija-Markova, I., Briede, L., Gaile-Sarkane, E., & Ozolina-Ozola, I. (2020). Multitasking in knowledge intensive business services. *Emerging Science Journal*, *4*, 305-318. https://doi.org/10.28991/esj-2020-01233

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics, 5th ed* (pp. xxvii, 980). Boston, MA: Allyn & Bacon/Pearson Education.

Tay, L., & Drasgow, F. (2012). Theoretical, statistical, and substantive issues in the assessment of construct dimensionality: Accounting for the item response process. *Organizational Research Methods*, *15*(3), 363-384. https://doi.org/10.1177/1094428112439709

Tay, L., & Jebb, A. T. (2018). Establishing construct continua in construct validation: The process of continuum specification. *Advances in Methods and Practices in Psychological Science*, *1*(3), 375-388. https://doi.org/10.1177/2515245918775707

Tay, L., & Kuykendall, L. (2017). Why self-reports of happiness and sadness may not necessarily contradict bipolarity: A psychometric review and proposal. *Emotion Review*, *9*(2), 146-154. https://doi.org/10.1177/1754073916637656

Tinsley, C. H. (2001). How negotiators get to yes: Predicting the constellation of strategies used across cultures to negotiate conflict. *Journal of Applied Psychology*, *86*(4), 583-593. https://doi.org/10.1037/0021-9010.86.4.583

Unsworth, K., Yeo, G., & Beck, J. (2014). Multiple goals: A review and derivation of general principles. *Journal of Organizational Behavior*, *35*(8), 1064-1078. https://doi.org/10.1002/job.1963

Vandewalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement*, *57*(6), 995-1015. https://doi.org/10.1177/0013164497057006009

Worringer, B., Langner, R., Koch, I., Eickhoff, S. B., Eickhoff, C. R., & Binkofski, F. C. (2019). Common and distinct neural correlates of dual-tasking and task-switching: A meta-analytic review and a neuro-cognitive processing model of human multitasking. *Brain Structure and Function*, *224*(5), 1845-1869. https://doi.org/10.1007/s00429-019-01870-4

APPENDIX A

Items Used in Study 1

Instruction: "People perform many and varied goals/tasks in life (e.g., work, health, social, leisure). To what extent do you agree or disagree with the following statements in describing your general preference when you pursue multiple goals?" from *1-strongly disagree* to *7-strongly agree*

Concurrent Preference:

I like to pursue several tasks or goals at the same time.
I prefer to achieve parts of several goals at the same time.
I like to work on more than a single task or goal at the same time.
I am comfortable pursuing several goals at the same time.
I like to work on several tasks or goals in parallel.
I like to pursue two or more goals concurrently.
I tend to pay parallel attention toward two or more goals.

Switching Preference:

I like to switch back and forth between two or more goals.
I feel engaged in what I am doing if I am able to switch between several different goals.
Please choose three as a response to this item.
I like switching back and forth between several goals.
When I have a goal to pursue, I like to break it up by switching to other goals intermittently.
I like to shift my attention between multiple goals.
I like to stop in the middle of one goal to work on another.
I would like to work in a job where I was constantly shifting from one goal to another.

Sequential Preference:

I like to achieve an entire goal at a time.
I prefer to pursue one goal at a time.
I like to achieve a goal completely before focusing on another goal.
It makes me uncomfortable when I am not able to attain one goal completely before focusing on another goal.
I have a preference for working in an environment where I can accomplish one goal before starting the next.
I have a "one-track" mind when pursuing my goals.
When I have several tasks or goals, I prefer to achieve them one by one.

Note: Items in bold were remained after EFA and item reduction and were used in study 2.

APPENDIX B

Overall instruction before presenting the two scales:

People pursue various goals and tasks in life and at work.
"Goal" here is defined as one's internal representation of desired end-states (i.e., what you desire, want, and value)
"Task" here is defined as a discrete set of activities engaged in for the purpose of attaining a goal. In the following two scales, we are interested in your general preference when pursuing multiple goals and tasks. There are no right or wrong answers. Please choose the options that best fit yourself in general.

Task Version

Instruction:

To what extent do the following statements describe your general preference when you pursue multiple tasks?

Response options:

1-very slightly or not at all; 2-a little; 3-moderately; 4-quite a bit; 5-extremely

Items:

I like to pursue several tasks at the same time.
I prefer to achieve parts of several tasks at the same time.
I like to work on several tasks in parallel.
I like to pursue two or more tasks concurrently.
I prefer to switch between several different tasks.
When I have a task to pursue, I like to break it up by switching to other tasks intermittently.
I like to shift my attention between multiple tasks.
I like to achieve an entire task at a time.
I prefer to pursue one task at a time.
I like to achieve a task completely before focusing on another task.
I prefer to attain one task completely before focusing on another.
I have a preference for working in an environment where I can accomplish one task before starting the next.
I have a "one-track" mind when pursuing my tasks.
When I have several tasks, I prefer to achieve them one by one.

(Note: Items 1 to 7 measure multitasking preference and items 8 to 14 measure sequential preference)

Goal Version

Instruction:

To what extent do the following statements describe your general preference when you pursue multiple goals?

Response options:

1-very slightly or not at all; 2-a little; 3-moderately; 4-quite a bit; 5-extremely

Items:

I like to pursue several goals at the same time.
I prefer to achieve parts of several goals at the same time.
I like to work on several goals in parallel.
I like to pursue two or more goals concurrently.
I prefer to switch between several different goals.
When I have a goal to pursue, I like to break it up by switching to other goals intermittently.
I like to shift my attention between multiple goals.
I like to achieve an entire goal at a time.
I prefer to pursue one goal at a time.
I like to achieve a goal completely before focusing on another goal.
I prefer to attain one goal completely before focusing on another.
I have a preference for working in an environment where I can accomplish one goal before starting the next.
I have a "one-track" mind when pursuing my goals.
When I have several goals, I prefer to achieve them one by one.

(Note: Items 1 to 7 measure multitasking preference and items 8 to 14 measure sequential preference)