

A meta-analysis of polychronicity: Applying modern perspectives of multitasking and person-environment fit

Organizational Psychology Review

1–33

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DOI: 10.1177/20413866221143370

journals.sagepub.com/home/opr**Matt C. Howard** 

Mitchell College of Business, The University of South Alabama, USA

Joshua E. Cogswell 

College of Business Administration, Nicholls State University, USA

Abstract

We apply modern theory on multitasking and person-environment fit to holistically explain the relations of polychronicity as well as provide justifications for disparate results found in prior studies, such as undetected differences regarding task-switching and dual-tasking. We then conduct a meta-analysis of polychronicity's relations. We show that the nomological net surrounding polychronicity matches our proposed fit perspective. We likewise demonstrate that differences in task-switching and dual-tasking indeed influence the observed results of polychronicity, and the growing complexity of businesses may have caused the association of polychronicity and job performance to strengthen over time. Our discussion highlights that polychronicity plays an important role in personal well-being and employee performance, which can be understood by our person-environment fit perspective.

Plain Language Summary

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Paper received 27 June 2021. Received revised October 22, 2022

Corresponding author:

Matt C. Howard, Mitchell College of Business, University of South Alabama, 5811 USA Drive S., Rm. 337, Mobile, AL 36688, USA.

Email: MHoward@SouthAlabama.edu

growing complexity of businesses may have caused the association of polychronicity and job performance to strengthen over time. Our discussion highlights that polychronicity plays an important role in personal well-being and employee performance, which can be understood by our person-environment fit perspective.

Keywords

cognition/perception, motivation, organizational citizenship behavior/extra-role behavior, personality & individual difference

Within the past two decades, researchers have increasingly studied the manner in which people treat time, which is represented in the constructs of pacing styles (Gevers et al., 2015), temporal focus (e.g., past, present, and future) (Kooij et al., 2018), time-keeping strategies (e.g., schedules, deadlines) (Mohammed & Nadkarni, 2014), and – the focus of the present article – polychronicity (Kaufman et al., 1991; Slocombe & Bluedorn, 1999; Souitaris & Maestro, 2010). Polychronicity is defined as, “an individual’s preference for shifting attention among ongoing tasks, rather than focusing on one task until completion and then switching to another task” (Poposki & Oswald, 2010, p. 250). Polychronicity is not the behavior of multitasking, tendency to multitask, or skill at multitasking – rather, it solely refers to the preference to multitask. People are believed to develop a preference for either multitasking or single-tasking that is relatively consistent across contexts, and polychronicity is conceptualized as a spectrum with the complete preference for multitasking and the complete preference for single-tasking at opposing ends. While a person may fall anywhere along this spectrum, researchers often refer to those who prefer multitasking as polychrons and those who prefer single-tasking as monochrons. This word usage is applied for the conciseness and clarity of writing rather than its accuracy, however, as it artificially dichotomizes the continuous nature of polychronicity.

A possible cause for this consistent interest in polychronicity is its supported relation to behaviors and performance. With the growing autonomy of the modern workplace (Kubicek et al., 2017; Zhang et al., 2017), the manner in which

employees choose to complete their tasks is becoming increasingly important. When paired with the similarly growing demand for employees to simultaneously manage several tasks due to increasing workplace complexity and digitization (Puranik et al., 2020; Sheer & Rice, 2017; Twyman et al., 2020), employees who choose to multitask can be particularly beneficial to modern organizations. Ultimately, research has supported a positive relation between polychronicity and “the field’s most important outcome variable – performance” (König & Waller, 2010, p. 174). More recent studies have associated the construct with employee health and well-being, showing that polychrons may even be healthier and happier than monochrons (Lyngs et al., 2019; Parry et al., 2020). At the same time, several authors have observed small and nonsignificant relations of polychronicity with multitasking behaviors, performance, and well-being – casting doubts upon the utility and validity of the construct (Grawitch & Barber, 2013; Kirchberg et al., 2015; König et al., 2005).

Such disparities may be due to systematic issues in the current literature that hamper a complete and accurate understanding of the construct. We discuss four such issues in the current article. First, many investigations have been conducted on polychronicity across several fields of study (e.g., psychology, management, hospitality, etc.), but no author has quantitatively synthesized the results of these investigations. The lack of a synthesis causes difficulties in interpreting the current scope of research, preventing a holistic understanding of polychronicity. Second, certain breakthroughs on multitasking have yet to be

integrated into research on polychronicity, resulting in outdated and inaccurate theorizations. Notably, large efforts have been made to differentiate dual-tasking and task-switching, as the two types of multitasking have differing relations. These discussions are not seen in research on polychronicity, and it is unknown whether certain disparate results arose due to the failure to differentiate dual-tasking and task-switching. Third, authors have called for the integration of person-environment (P-E) fit theories in the study of polychronicity, but empirical research has yet to meet the demand for these calls (Asghar et al., 2020, 2021). Initial studies have supported that these fit theories are effective in understanding the relations of polychronicity (e.g., Hecht & Allen, 2005), encouraging their broader application. Fourth, many scales have been developed to measure polychronicity, and the creators of each of these scales argue that their measures address concerns of prior scales. It is therefore unclear whether certain disparate results may have also arisen due to differences in the measurement of polychronicity.

To address these issues and produce a more unified course of study, we present a review and quantitative synthesis of research on polychronicity. We begin by highlighting discrepancies between research on polychronicity and multitasking, and we apply a P-E fit perspective to propose our hypotheses. We discuss that research typically considers polychronicity to be a relatively stable individual difference, and we utilize P-E fit theory to argue that polychronicity relates to both certain individual differences (e.g., openness, extraversion) and contextual factors due to desires to achieve complementary fit. We also argue that polychronicity is an important predictor of personal (e.g., job satisfaction, well-being) and performance outcomes (e.g., job performance, creativity, extra-role behaviors). The growing complexity of modern work demands multitasking, and we expect positive relations between polychronicity and these outcomes due to the fit of polychrons' preferences with demands of the modern workplace. To test our claims, we perform a meta-analysis that is separated into

three sections. The first section contains tests of polychronicity's individual difference and contextual correlates. The second contains tests of polychronicity's outcomes, which also includes tests of moderation focused on differences between dual-tasking and task-switching. The third contains analyses associated with methodological designs, including tests of scale convergent validity and moderation.

Our implications span both research and practice. First, by integrating scholarship on polychronicity, we perform a much-needed synthesis that provides a holistic understanding of polychronicity and its relations. We identify relations that have been sufficiently studied as well as those demanding more scholarly attention. Second, we resolve certain disagreements and uncertainties in the polychronicity literature by incorporating new perspectives on multitasking. We highlight that modern measures of polychronicity only gauge preferences for task-switching (and ignore dual-tasking), which taints interpretations of the construct. Third, the applied fit perspective accurately depicts the relations of polychronicity as well as positions the construct in the changing nature of work. Perhaps the most important contribution of the fit perspective, however, is the identification of future research directions. While our results emphasize the significance of polychronicity via its relations with important outcomes (e.g., well-being, performance), the applied fit perspective provides directions to uncover explanatory mechanisms and boundary conditions that can produce a more complete understanding of polychronicity. Thus, our meta-analysis both addresses unknowns of polychronicity as well as identifies remaining unknowns surrounding the construct.

Background

Defining polychronicity

Polychronicity is considered the preference for multitasking. While studied extensively, our understanding of polychronicity may be incomplete due to the tendency of prior work to overlook certain established nuances of multitasking

(Bluedorn et al., 1999; Kiesel et al., 2010; Strobach et al., 2018). Koch et al. (2018) recently formalized the definition of multitasking to be, “when cognitive processes involved in performing two (or more) tasks overlap in time” (p. 558), which includes both dual-tasking and task-switching. Dual-tasking is the performance of two activities simultaneously, such as counting the number of times a word is stated in an audio recording while also counting the number of times a different word is written in a series of text (Huxhold et al., 2006; Strobach et al., 2018). Task-switching is the allocation of attention among multiple tasks before completing any task, as opposed to entirely dedicating attention to sequential tasks from start to finish (Koch et al., 2010; Monsell, 2003). Polychrons are individuals who may possess a preference for dual-tasking, task-switching, or both.

Most polychronicity research, however, considers it to be largely a preference for task-switching, which can be seen by the greater representation of task-switching in commonly used measures of polychronicity (see Appendix A) (Bluedorn et al., 1999; Kaufman et al., 1991; Lindquist & Kaufman-Scarborough, 2007; Poposki & Oswald, 2010). This is not to say that polychronicity is the preference for task-switching, but instead the study of polychronicity is focused on preferences for task-switching rather than preferences for multitasking (i.e., task-switching and dual-tasking). In the current article, we consider polychronicity to be a preference for multitasking and develop certain hypotheses based on the distinction between task-switching and dual-tasking, but we acknowledge the predominant focus on task-switching in prior research.

Person-Environment fit perspective of polychronicity

The current article draws from P-E fit theory (Caplan, 1987; Edwards et al., 1998; Guan et al., 2011; Kristof-Brown & Guay, 2011) to develop our hypotheses regarding antecedents and outcomes of polychronicity. P-E fit theory suggests

that personal characteristics must be considered within the context of the environment, as behavior is a product of both the person and the environment (Schneider, 1987; Kristof, 1996). The theory further suggests that individuals seek to match their personality, values, and other individual characteristics with salient features of their work environment (Kristof-Brown et al., 2005; van Vianen, 2018). That is, individuals seek P-E fit, broadly defined as the “congruence, match, similarity, or correspondence between the person and the environment” (Edwards & Shipp, 2020, p. 534). In the workplace, individuals may search for fit at multiple levels, for instance with their job, their organization, or their work group (Kristof, 1996). A well-known early example of fit is Holland’s (1971) conception of person-vocation fit, which suggested that individuals seek out professions that match their personality. Holland argued that “artistic” individuals are more likely to seek artistic vocations, individuals with “investigative” dispositions seek out “investigative” professions and so on.

The P-E fit literature further distinguishes the primary types of fit between supplementary and complementary fit (Cable & Edwards, 2004; Guan et al., 2011). Supplementary fit refers to a situation in which the person possesses similar characteristics to other individuals in the work environment, whereas complementary fit exists when a “weakness or need of the environment is offset by the strength of the individual, and vice versa” (Muchinsky & Monahan, 1987, p. 271). Complementary fit thus represents the extent to which the individual and the environment each provide what the other requires, and multiple subtypes of complementary fit exist. With relevance to the current investigation, demands-abilities fit is the extent to which an individual can meet the requirements of the work environment, whereas supplies-needs fit is the extent that the environment supplies opportunities for the individual to fulfill their needs, values, and preferences (Kristof, 1996; Kristof-Brown et al., 2005). People can seek fit on a wide range of dimensions for both demands-abilities and supplies-needs fit, including their preferences

for how they organize and manage their time (Asghar et al., 2020, 2021; Hecht & Allen, 2005). To the extent that polychrons find themselves in organizational environments that require multitasking and reward those who are successful at multitasking, it may be said that such individuals have found both satisfactory demands-abilities fit and supplies-needs fit.

Achieving fit has important consequences for individuals and organizations. Fit positively relates to job satisfaction, organizational commitment (Dawis & Lofquist, 1984; Diener & Lucas, 2000; Meyer et al., 2010), psychological well-being (Edwards & Van Harrison, 1993), and job performance (Wu et al., 2020). We expect similar relations for polychronicity. As mentioned, modern organizations are becoming more digitized, growing in complexity, and providing more autonomy to employees than ever before. These factors supply polychrons with greater opportunity to express their preferences for multitasking, and they may experience superior demands-abilities, supplies-needs fit, and positive outcomes that come with them. On the other hand, people can employ their disfavored strategy when it benefits their situation, and a monochron may engage in multitasking if told that completing multiple tasks simultaneously is important en route to achieving their overarching goal. When people apply their disfavored strategy, however, they do not experience demands-abilities fit, supplies-needs fit, or their associated positive outcomes. Despite using the most appropriate strategy for completing the tasks, the person may experience worse personal and organizational outcomes than those achieving fit. Therefore, due to gradual changes to the modern workplace, it is expected that polychrons will generally experience more beneficial outcomes than monochrons.

Some empirical support has been provided for this P-E fit perspective of polychronicity. Hecht and Allen (2005) directly showed that polychronicity values interact with polychronicity supplies in predicting job satisfaction and well-being outcomes. Kirchberg et al. (2015) supported that polychronicity moderates the relations of job

multitasking behaviors with well-being, wherein polychrons reported higher well-being after multitasking than monochrons. This suggests that both polychrons and monochrons may choose to multitask, but only polychrons' well-being benefits from doing so in accordance with our fit perspective. Asghar et al. (2020) and Asghar et al. (2021) utilized P-E fit theory to propose that polychronicity directly effects work engagement, turnover intentions, and job performance. These authors argued that customer service jobs inherently involve multitasking, and polychrons would experience greater fit in customer service roles – similar to broader assertions made in the current article. Therefore, prior precedent does exist for the application of P-E fit theory to understand polychronicity, but the present investigation is unique in that it expands these arguments to investigate a broader set of correlates and outcomes. We hypothesize these correlates and outcomes below.

Individual difference and contextual correlates

Polychronicity is typically considered a stable personal attribute, and people are believed to develop a preference for multitasking or single-tasking that is continued throughout their life (Korabik et al., 2017; Szameitat & Hayati, 2019). From our P-E fit perspective, traits that benefit multitasking may cause people to be predisposed to prefer multitasking or single-tasking, as they seek activities that produce complementary fit with their natural characteristics. Some authors have also supported the relation of polychronicity with contextual factors (Chen, 2020; Pazos et al., 2013). We again apply our P-E fit perspective to suggest that these relations reflect that people matriculate to contexts that match their individual differences, which can also be seen in other theoretical perspectives (e.g., ASA framework; Williams et al., 2022). Below, we hypothesize the relation of polychronicity with theoretically relevant individual differences, followed by hypotheses regarding the relation of polychronicity with contextual factors.

The first theoretically relevant individual difference is openness. Openness, whether conceptualized in the Big Five or HEXACO, refers to the tendency to be open-minded, inquisitive, creative, and appreciate abstract thinking (Howard & Van Zandt, 2020). Openness involves cognitive flexibility, and those high in openness are known to be more fluid with their mental schemas (DeYoung et al., 2005; Murdock et al., 2013). When multitasking, people are required to shift their frame-of-reference between their varied tasks, forcing them to juggle their associated schemas associated with the tasks. This is believed to cause cognitive bottlenecks, which are easier for those with greater cognitive flexibility to manage (Koch et al., 2018). Because those higher in openness are believed to have greater cognitive fluidity, they are also believed to prefer situations that require multitasking due to experiencing greater complementary fit. Therefore, we suggest that openness has a positive relation with polychronicity.

The second and third theoretically relevant individual differences are extraversion and impatience. Both of these individual differences have associations with sensation seeking, which refers to a preference for varied and novel stimuli (Aluja et al., 2003; Kass & Vodanovich, 1990). When given the choice, those higher in extraversion and impatience would be more likely to watch a new movie rather than revisit an old favorite (Zuckerman, 1971). Multitaskers must face stimuli from each of their simultaneous tasks, whereas single-taskers only need to attend to stimuli from a single task. This typically causes multitaskers to be exposed to a greater range of stimuli in a shorter amount of time. Those high in extraversion and impatience may therefore prefer multitasking due to the produced fit, as they may either be accustomed to stimuli exposure or actively enjoy it.

The fourth and final theoretically relevant individual difference is cognitive ability. Cognitive ability includes a multitude of dimensions that differ between conceptualizations, but most all conceptualizations of cognitive ability include

the ability to identify, interpret, and imbibe information (Howard & Cogswell, 2018; Hunter, 1986). Those with greater cognitive abilities are believed to be able to both more quickly achieve this feat as well as achieve this feat with a greater amount of simultaneously presented information, such as recalling a greater amount of concurrently provided numbers. When multitasking, people must attend to a greater amount of simultaneously presented information, which must be identified, interpreted, and imbibed. If a person is unable to do so, it is likely that they will dislike multitasking. Due to the natural complementary fit produced between those with greater cognitive abilities and multitasking, we hypothesize that cognitive abilities has a positive relation with polychronicity.

Hypothesis 1: Polychronicity has positive relations with (a) openness, (b) extraversion, (c) impatience, and (d) cognitive ability.

Researchers have frequently studied the relation of polychronicity with several other individual differences, but theoretical justifications are rarely provided for these alternative relations. These alternative individual differences include demographic characteristics, other Big Five traits, and time-keeping strategies. Demographic characteristics are often studied alongside polychronicity as either control variables or elements of broader models, but they are rarely hypothesized to have a direct relation with polychronicity. Other Big Five Traits are regularly studied with polychronicity because researchers incorporate the entirety of the Big Five in their research models, but these other aspects are rarely proposed to relate to polychronicity. Time-keeping strategies, notably planning- and deadline-orientation, are often studied alongside polychronicity when authors intend to study multiple temporal individual differences together, but they are typically studied as independent rather than interrelated constructs. We investigate these alternative individual differences for the sake of completeness in our meta-analysis, but we do not propose an a

priori justification for their relations with polychronicity.

Research Question 1: What is the relation of polychronicity with (a) gender, (b) age, (c) tenure, (d) education, (e) conscientiousness, (f) agreeableness, (g) neuroticism, (h) planning-orientation, and (i) deadline-orientation?

As mentioned, polychronicity is typically believed to be a relatively stable individual difference, and prior researchers have observed a relation between polychronicity and contextual variables, namely overload and multitasking pressures (Arndt et al., 2006; Chen, 2020; Pazos et al., 2013). We leverage P-E fit theory to argue that this relation occurs because people seek complementary fit. That is, polychrons naturally prefer environments that require multitasking, and environments with overload and multitasking pressures benefit those who multitask (Cochrum-Nguyen, 2013; Palekar, 2011). Due to their natural proclivities, polychrons may seek environments that allow or even require multitasking, such as those with overload and multitasking pressures. Over time, polychrons may therefore be more likely to find themselves in environments with overload and multitasking pressures, resulting in a positive relation between polychronicity and the contextual variables of overload and multitasking pressures.

Hypothesis 2: Polychronicity has positive relations with (a) overload and (b) multitasking pressures

Outcomes

According to our P-E fit perspective, polychrons benefit from contexts that require multitasking and suffer from contexts that require single-tasking, whereas monochrons benefit from contexts that require single-tasking and suffer from contexts that require multitasking. To identify the outcomes of polychronicity, we argue that

contexts requiring multitasking are more prevalent in modern workplaces, in adherence to research on polychronicity and the changing nature of work (Ackerman & Kanfer, 2020; Conte & Jacobs, 2003; De Bruin & Barber, 2019). Thus, we expect polychrons to experience higher levels of supplies-needs fit because they are more likely to find fit in modern workplaces. Consistent with P-E fit theory, we argue that this superior fit will result in positive outcomes for polychrons.

Many contexts in which multitasking is believed to be beneficial involve overload, including both information overload and role overload (Chisholm et al., 2000; Dean & Webb, 2011; Korabik et al., 2017). Information overload refers to being exposed to excessive stimuli (Jacoby, 1984). Airline pilots, for example, regularly encounter information overload, as they must constantly monitor a multitude of flight status indicators to ensure passenger safety. In occupations that regularly experience information overload, those that can effectively dual-task experience better demands-abilities fit (Grawitch & Barber, 2013; König & Waller, 2010). Alternatively, role overload refers to the burden of being assigned excessive tasks, and it can occur in almost any job (Brown et al., 2005). Occupations with role overload are benefitted by task-switching, as effective task-switchers can better capitalize on opportunities to further a project when such opportunities arise. Occupations with role overload may also prohibit the completion of tasks from start to finish, because employees may be regularly expected to turn their attention to new tasks. Polychrons are expected to perform better in these occupations, as they experience greater demands-ability fit (Grawitch & Barber, 2013; König & Waller, 2010).

Employees are increasingly expected to handle overload with the growing complexity and digitalization of occupations (Conte & Jacobs, 2003; Kantrowitz et al., 2012; Karatepe, 2013). The continued growth of knowledge-based work has necessitated a greater number of employees to integrate

complex information to perform their tasks, which can be seen at almost all levels of the organizational hierarchy (Puranik et al., 2020; Sheer & Rice, 2017; Twyman et al., 2020). Such complexities are expected to only increase in the future, resulting in few simple jobs within the modern world (Hodgson, 2016). Furthermore, employees are now expected to simultaneously monitor multiple avenues of information in many occupations (Wajcman & Rose, 2011). For instance, many office jobs now require employees to continuously monitor email and instant messaging applications, causing employees to dual task as they complete their activities. Likewise, employees are more connected than ever before via modern technologies (e.g., cell-phones, tablets), and supervisors can contact employees more frequently throughout their workday – and even after (Büchler et al., 2020). These employees are often expected to task switch, as supervisors may assign new tasks while they are completing a prior obligation. Polychrons are expected to perform better in these occupations, as they experience greater demands-ability fit (Grawitch & Barber, 2013). Together, we propose that polychrons better fit with a greater number of modern workplace environments due to the changing nature of work. We apply this assertion in hypothesizing the outcomes of polychronicity below.

Behavioral outcomes

We study five behavioral outcomes of polychronicity: multitasking behaviors, multitasking performance, extra-role behaviors, creativity, and job performance. The first of these, multitasking behaviors, has a clear relation to polychronicity. Polychrons prefer to multitask, so it is reasonable to believe that they would choose to multitask more often when given the opportunity (Conte et al., 2019; Poposki & Oswald, 2010). We expect a positive relation between polychronicity and multitasking behaviors. At the same time, a small relation between polychronicity and multitasking would suggest that employees' work

routines are largely determined by environmental factors rather than personal preferences, and polychronicity may have little influence on the manner in which employees complete their tasks.

Hypothesis 3: Polychronicity is positively related to multitasking behaviors.

People are believed to be better performers at their preferred task-completion strategy, whether multitasking or single-tasking, for two reasons. First, when given the opportunity to use their preferred strategy, people experience greater supplies-needs fit. The beneficial outcomes of experiencing fit, such as greater motivation, may enable those using their preferred strategy to be better performers at their preferred strategy than those who have alternative preferred strategies. Second, people develop improved behavioral routines when using those approaches more often (Grawitch & Barber, 2013; König & Waller, 2010), and polychrons are believed to multitask more often when given the opportunity. Over time, polychrons should become superior at multitasking, whereas monochrons should become superior at single-tasking. We predict that polychronicity is positively related to multitasking performance, wherein multitasking performance refers to the assessed performance of specific tasks that explicitly require multitasking. This is often tested by conducting laboratory studies that require participants to complete two different tasks at the same time, whether dual-tasking or task-switching.

Hypothesis 4: Polychronicity is positively related to multitasking performance

A caveat should be made regarding these two proposed hypotheses. Some authors have observed small and even non-significant relations of polychronicity with multitasking behaviors and performance, drawing notable concerns regarding the validity of polychronicity (Grawitch & Barber, 2013; König et al., 2005). We suggest that integrating recent developments regarding multitasking can explain

these disparate results. As noted, multitasking is composed of both task-switching and dual-tasking (Koch et al., 2018), but popular measures of polychronicity largely assess preferences for task-switching alone (Bluedorn et al., 1999; Poposki & Oswald, 2010). In prior studies assessing the relation of polychronicity with multitasking behaviors and performance, researchers may have applied measures of multitasking behaviors and performance that are representative of task-switching, dual-tasking, or both. This suggests that prior studies may have produced systematically differing findings for the same relation depending on their outcome measures, and the true nature of polychronicity's relation with multitasking behaviors and performance is obfuscated. Thus, we investigate differences in these prior relations, hypothesizing that polychronicity is more strongly related to task-switching behaviors and performance than dual-tasking behaviors and performance due to the nature of extant measures.

Hypothesis 5: Polychronicity is more positively related to (a) task-switching behaviors than dual-tasking behaviors as well as (b) task-switching performance than dual-tasking performance

We now discuss the broader outcomes of polychronicity. Workplaces have steadily become increasingly complex and digitized, which results in greater demands for multitasking (Hodgson, 2016; Puranik et al., 2020; Sheer & Rice, 2017; Twyman et al., 2020). Polychronicity research has occurred during both Industry 3.0 and Industry 4.0. Industry 3.0 refers roughly to the second half of the twentieth century, a period typified by increasing levels of automation and digitization of organizations. Industry 4.0 refers to the more recent decades which have seen the introduction of cyber-physical systems (e.g., Internet of Things) and the widespread use of smart devices capable of independently collecting data and triggering actions independent of

human interaction (Dalenogare et al., 2018). As more simple, repetitive, mundane tasks are increasingly performed by smart devices, human jobs are increasingly autonomous, creative, and collaborative (Kubicek et al., 2017; Zhang et al., 2017). We do not draw a clear line between the two periods, nor do we suggest there is a clear point at which organizations began to value multi-tasking. Instead, we suggest that multitasking has been valued throughout Industry 3.0 and Industry 4.0, and this trend has accelerated over time.

Because our P-E fit perspective proposes that polychrons experience greater fit in environments that require multitasking, they are likewise believed to be better performers in these environments. While differences across occupations are certainly expected, we propose that, on average, polychronicity has a positive relation with job performance due to requirements for multitasking in both Industry 3.0 and Industry 4.0, wherein job performance refers to the broadly assessed performance of individuals' activities at work.

Hypothesis 6: Polychronicity is positively related to job performance.

While necessary for both, multitasking is believed to be more necessary to Industry 4.0 occupations than Industry 3.0 occupations. We therefore propose that the relationship between polychronicity and job performance is stronger in more recent sources, and source year moderates the relation of polychronicity and job performance.

Hypothesis 7: Year moderates the relation between polychronicity and job performance, such that the relation is stronger in more recent sources.

Extra-role behaviors are voluntary employee actions performed for the benefit of coworkers and the organization (Van Dyne & LePine, 1998; Werner, 1994), and we suggest that many extra-role behaviors, regardless of the context, require multitasking to perform. Extra

role behaviors include helping coworkers, speaking well of the organization, and volunteering for duties. As apparent from these examples, many extra-role behaviors arise due to situational circumstances (Miles et al., 2002; Morrison, 1994). For instance, an employee cannot help a coworker until it becomes apparent that they need assistance, and an employee cannot volunteer for duties until such opportunities arise. The employee must be capable to effectively task-switch from their primary duties to perform the extra role behavior. In these cases, the opportunity to perform an extra-role behavior could be considered a situation that calls for multitasking, and those who prefer to multitask could feel greater demands-abilities fit. It is therefore expected that polychronicity has a positive relation with extra-role behaviors.

Hypothesis 8: Polychronicity is positively related to extra-role behaviors.

Like extra-role behaviors, creativity is inherently intertwined with multitasking. Creativity has been called a “temporally-laden construct” (McKay & Gutworth, 2019, p.1) reflected in process models of creativity (Elsbach & Kramer, 2003; Mumford & McIntosh, 2017). These models depict creativity as a multiple stage process, wherein the temporal progression of these stages may not be linear. Instead, developments in subsequent stages may cause revisions to prior stages. For instance, a coder may design a program before starting, but they may revise their design to be more innovative when inspiration strikes during the coding process. Prior authors have argued that multitasking may be particularly beneficial in managing the multiple phases of the creative process, resulting in polychrons both having a greater propensity for creativity and producing higher quality creative outcomes (Kayaalp, 2014; Madjar & Oldham, 2006; McKay & Gutworth, 2019). Specifically, polychrons may be more capable at task-switching among the multiple phases, and they may be more capable at remaining cognitively aware of changes that could be made to

prior phases as they progress through subsequent phases of the creative process – effectively dual-tasking. The benefits of multitasking may also cause creative endeavors to be a context that inherently fits with polychrons’ preferences, as they may feel that the demands of the task match their abilities. Polychronicity is thus expected to positively relate to creativity.

Hypothesis 9: Polychronicity is positively related to creativity.

Personal outcomes

We hypothesize the relations of polychronicity with several personal outcomes. Because we proposed that multitasking is becoming increasingly necessary in workplace environments, we likewise propose that polychrons, on average, feel greater demands-abilities fit and supplies-needs fit when completing expected tasks in modern organizations (Adler & Benbunan-Fich, 2013; Lyngs et al., 2019; Parry et al., 2020). These feelings of fit may have a large impact in both work and life domains. Regarding work domains, we suggest that polychrons are less stressed at work due to these greater feelings of fit, and we expect polychronicity to positively relate to job attitudes as well as motivation and motivational orientations. Regarding life domains, employees’ work lives strongly influence their overall well-being (Judge & Watanabe, 1993; Rice et al., 1980). The beneficial effects of polychronicity and fit are expected to result in greater general well-being. Similarly, because employees with better job attitudes as well as motivation and motivational orientations are known to have less negative work spillover into their life domains (Heller & Watson, 2005; Ilies et al., 2009), it is expected that polychronicity has a positive relation with work-life balance.

Hypothesis 10: Polychronicity is positively related to (a) job attitudes, (b) motivation and motivational orientations, (c) well-being, and (d) work-life balance.

Methodological hypotheses and research questions

Four measures of polychronicity are most popular in research, and their differences should be recognized to best interpret extant quantitative research. The four-item Polychronic Attitudes Inventory (PAI) is the oldest of these measures (Kaufman et al., 1991). While the scale was pivotal in operationalizing polychronicity, the measure was not applied as widely as some subsequent scales (Oberlander, 2008). This may be due to the exploratory nature of Kaufman et al. (1991), wherein the authors acknowledged that their scale should be improved upon. Next, the 10-item Inventory of Polychronic Values (IPV) is perhaps the most used measure of polychronicity, likely because its creators provided psychometric and validity support (Bluedorn et al., 1999). The measure was created to gauge polychronicity at the culture-level, but a version that assesses polychronicity at the individual-level is more frequently used in research. Further, Lindquist and Kaufman-Scarborough (2007) created the five-item Polychronic–Monochronic Tendency Scale (PMTS). These authors asserted that the PAI and IPV were context-specific, and they sought to create a general measure of polychronicity. They also provided adequate psychometric and validity evidence. Lastly, the 14-item Multitasking Preference Inventory (MPI) is the most recent of these measures (Poposki & Oswald, 2010). The MPI was created to address alleged construct confusion and contamination in prior measures, particularly to remove aspects of behavioral multitasking from the measurement of polychronicity. Like the IPV and PMTS, its creators provided adequate psychometric and validity evidence for the MPI.

In each case, these authors argued that their scale addresses concerns of prior measures. It should be questioned, therefore, whether the study of polychronicity is obfuscated by differences in these measures, wherein differing study results may be due to aspects of measures rather than more substantive aspects of polychronicity. We assess the convergent validity

among these measures. Because extant data is too limited to perform item-level analyses (e.g., Carpenter et al., 2016), we instead consider these measures to sufficiently converge if their meta-analytic correlation is .70 or above (Bosco et al., 2015).

Hypothesis 11: The average correlation of polychronicity measures is greater than .70.

These authors argued that their measures differ from prior measures, and we therefore test whether the relations of polychronicity differ based on the applied scale. We do not provide hypotheses regarding these differences, but instead assess this possibility as a research question.

Research Question 2: Do the relations of polychronicity differ based on the applied measure?

We also analyze a methodological factor that is not associated with measurement. We test whether researchers utilize appropriate methodologies by coding and analyzing differences in the effects of polychronicity based on whether it was measured before, cross-sectionally, or after the other variables of interest. For instance, polychronicity may produce a strong relation with job performance when measured cross-sectionally, but it may produce a weak relation when measured before. This would indicate that polychronicity may not be a predictor of job performance, and prior relations may need to be retested with more appropriate research designs.

Research Question 3: Do the relations of polychronicity differ based on its measured temporal separation with other variables?

Methods

To test our hypotheses and research questions, we performed a meta-analysis following the preferred reporting for systematic reviews and meta-analyses (PRISMA) standards, meta-analysis

reporting standards (MARS), and suggestions of prior authors (Borenstein et al., 2010; Cheung, 2015; Cooper et al., 2019; DeSimone et al., 2019; Hunter & Schmidt, 2004; Jak, 2015; Jak et al., 2020; Kepes et al., 2013; Moher et al., 2009; Shamseer et al., 2015; Wood, 2008).

Identifying sources

Full-text searches were conducted in August 2020 using the PubMed, EBSCO, ProQuest Theses and Dissertations, and Google Scholar databases. EBSCO aggregates results from multiple databases, enabling the present meta-analysis to review a wider scope of literature. These databases include Academic Search Complete, Business Source Complete, Education Research Complete, APA PsycInfo, APA PsycArticles, Health Source: Nursing/Academic Edition, MEDLINE, and many others. Alternatively, Google Scholar is even more comprehensive than EBSCO, and it also includes a greater number of conference papers and research reports. This allowed the present meta-analysis to incorporate many unpublished sources, and therefore we were able to assess a sufficient scope of research on polychronicity to investigate our research questions.

The following search criteria were used for each database: Polychronic*¹, “Multitasking Preference*”, “Preference* for Multitasking”, “Task-Switching Preference*”, “Preference* for Task-Switching”². Our Google Scholar research for, “Polychronicity”, returned over 3,000 results, and sources after the first several hundred results only included the term within its references section. For this reason, we only included the first 1,000 results of this specific search, as sources after this cutoff were almost entirely irrelevant to our purposes. We included all PubMed and EBSCO results. We also contacted over 200 relevant researchers, including all corresponding authors of sources included within our final meta-analytic database, for any pertinent unpublished data. Likewise, we performed reverse and forward searches of prominent articles on polychronicity.

After removing duplicates, these searches produced 1,549 initial sources that were coded by in multiple phases two trained coders who are authors of the present article. The primary coder developed the coding guidelines, created coding instructions, and trained the other coder on coding decision rules. For each phase, the two coders initially coded articles together until they reached a sufficient level of agreement (Cohen’s $\kappa > .80$) for a set of articles, and they then coded the sources independently. When coding articles independently, the two coders conferred on any coding difficulties and occasionally spot-checked coding decisions to ensure that no systematic differences arose.

The coders first coded whether the source was written in English and performed an empirical study in which polychronicity was measured, which reduced the original list of 1,549 sources to 333. Next, the two coders coded all relations of polychronicity represented by an effect size that could be included within a meta-analysis, which were typically correlations, t-tests, as well as means and standard deviations separated by group membership (e.g., polychrons vs. monochrons). While other suitable statistics were also included, we did not include any effect sizes that represented the relation of multiple variables (e.g., regression coefficients) due to concerns regarding their biasing influences in meta-analyses (Boxer et al., 2015; Ferguson, 2015; Furuya-Kanamori & Doi, 2016; Rothstein & Bushman, 2015). We also only coded articles that reported relations of polychronicity at the individual-level, resulting in the removal of sources that solely investigated polychronicity at the team- or organizational-level. This phase reduced the item list of 333 to 203, as many sources did not report any usable statistics. Lastly, the coders categorized the usable effect sizes based on our hypotheses and research questions. Some articles only reported relations that did not fit into any of our categories, and this final phase reduced the item list from 203 to 149 sources. Thus, our final meta-analytic

database included 149 sources and 172 studies. Supplemental Material A includes a flow diagram of our coding procedures.

Of our 149 sources, 95 were articles (64%); 40 were theses or dissertations (27%); 8 were unpublished manuscripts (5%); 5 were conference papers (3%), and 1 was a book chapter (1%). In all, about two-thirds of our sources were published articles, and about one-third were unpublished sources. The study of polychronicity is becoming more popular over time. Our meta-analytic database included 21 articles published before 2006 (14%), 31 articles published between 2006 and 2010 (21%), 42 articles published between 2011 and 2015 (28%), and 55 articles published after 2015 (37%). The IPV was applied in 129 studies (50%); the MPI was applied in 44 studies (17%); the PAI was applied in 23 studies (9%); the PMTS was applied in 11 studies (4%); and other polychronicity scales were applied in 49 studies (19%).

Our meta-analytic dataset is provided in Supplemental Material B, which includes the labels given to the constructs within each construct category. As mentioned further in our limitations section, constructs with differing labels must be grouped together into meaningful categories when conducting meta-analyses. We believe that all constructs are meaningfully grouped together in the present analyses, but readers can utilize Supplemental Material B to conduct analyses when including or excluding specific constructs within categories.

Analyses

All effect sizes were converted to a common statistic and most analyses were calculated using Comprehensive Meta-Analysis V3. The weight-function model analyses and three-level meta-analyses were calculated in R 3.5.1. We began our analyses by calculating indices of publication bias. These included fail-safe k , Egger's test, trim-and-fill method tests, and weight-function model analyses. Multiple publication bias tests

were applied because each has their relative strengths and weaknesses, and publication biases are typically not a concern unless multiple tests meet their respective cutoffs (Rothstein et al., 2005; Thornton & Lee, 2000). More information regarding these publication bias tests can be found in Supplemental Material C. We also conducted several analyses to assess the presence of outliers and influential cases, which are provided in Supplemental Material D. When recalculating our results while excluding any possible outliers and influential cases, all statistically significant results remained statistically significant, and all non-statistically significant results remained non-statistically significant. Because these prior studies with atypical effect sizes may still be accurate representations for our relations of interest, the primary text reports our analyses while including these possible outliers and influential cases. Alternative analyses without these cases can be provided upon request.

We applied a sample-size weighted, random-effects model for all primary analyses. We also used an artifact distribution approach to correct for unreliability, which was the most relevant attenuating factor in the primary sources (Hall & Brannick, 2002; Hunter & Schmidt, 2004; Wiernik & Dahlke, 2020). I^2 values are provided as an indicator of variance due to heterogeneity rather than sampling error. Sources could provide results of multiple studies, but studies could also provide multiple effect sizes for the same relation of polychronicity in a single study. For instance, a single study could apply two different scales of polychronicity and report both their relations with all other measured variables. For this reason, multiple effect sizes from the same study were averaged together to prevent unequal weighting. Some authors have noted that averaging effects could produce biases in meta-analyses (Cheung, 2015; Jak, 2015). For this reason, we recalculated all results using a three-level meta-analytic approach. Three-level meta-analyses separately allocate variance between and within studies, such that effect sizes do not need to be averaged together

within a single study before conducting analyses (Cheung, 2015; Jak, 2015). All three-level meta-analytic results replicated the primary analyses, and all inferences were consistent between the two sets of analyses. Due to its more common reporting, we present the traditional meta-analytic results in the primary text, and Supplemental Material D includes the three-level meta-analytic results. These alternative three-level meta-analytic estimates are considered sensitivity analyses to support the robustness of the present results.

Results

Individual difference and contextual correlates.

Table 1 provides our meta-analytic results for the relations of polychronicity with individual differences and contextual correlates. Hypothesis 1 proposed that polychronicity significantly relates to (a) openness, (b) extraversion, (c) impatience, and (d) cognitive ability. Polychronicity was significantly and positively related to openness ($\bar{r} = .12$, $\bar{\rho} = .15$, 95% *C.I.* [.07, .18], $p < .01$), extraversion ($\bar{r} = .18$, $\bar{\rho} = .22$, 95% *C.I.* [.12, .24], $p < .01$), impatience ($\bar{r} = .10$, $\bar{\rho} = .13$, 95% *C.I.* [.01, .18], $p = .03$), and cognitive ability ($\bar{r} = .06$, $\bar{\rho} = .07$, 95% *C.I.* [.01, .11], $p < .01$). These results support Hypothesis 1a-1d.

Research Question 1 queried whether polychronicity related to a large set of individual differences without clear theoretical connections, which include (a) gender, (b) age, (c) tenure, (d) education, (e) conscientiousness, (f) agreeableness, (g) neuroticism, (h) planning-orientation, and (i) deadline-orientation. Polychronicity did not relate to any of the alternative individual differences (all $p > .05$). These results address Research Question 1a-1i.

Hypothesis 2 proposed that polychronicity significantly relates to (a) overload and (b) multitasking pressures. Polychronicity did not significantly relate to overload ($\bar{r} = .01$, $\bar{\rho} = .01$, 95% *C.I.* [-.07, .09], $p < .01$), but it significantly related to multitasking pressures ($\bar{r} = .25$, $\bar{\rho} = .31$, 95% *C.I.* [.17, .33], $p < .01$).

These results support Hypothesis 2b but not Hypothesis 2a.

Outcomes. Table 2 provides our meta-analytic results for the relations of polychronicity with outcomes. Hypotheses 3 and 4 proposed that polychronicity is related to multitasking behaviors and multitasking performance, respectively. Polychronicity was significantly and positively related to both multitasking behaviors ($\bar{r} = .27$, $\bar{\rho} = .34$, 95% *C.I.* [.19, .34], $p < .01$) and multitasking performance ($\bar{r} = .21$, $\bar{\rho} = .23$, 95% *C.I.* [.12, .29], $p < .01$), supporting Hypotheses 3 and 4. Hypothesis 5a and 5b also predicted that polychronicity is more strongly related to task-switching than dual-tasking for these two outcomes, due to the prevalence of task-switching preference in prior polychronicity research. To assess this relation, we created dummy codes representing whether the indicators of multitasking behaviors and multitasking performance were more representative of task-switching (coded as 1) or dual-tasking (coded as 0), and we included these dummy-codes in two separate regressions. The dummy code representing dual-tasking or task-switching for multitasking behaviors was statistically significant ($\beta = .26$, *S.E.* = .09, 95% *C.I.* [.09, .43], $p < .01$; $k = 22$; $n = 4,182$), but not the dummy code for multitasking performance ($\beta = .09$, *S.E.* = .13, 95% *C.I.* [-.17, .35], $p = .49$; $k = 20$; $n = 4,945$). Hypothesis 5a was supported but not Hypothesis 5b.

Hypothesis 6 suggested that polychronicity is positively related to job performance. Polychronicity was significantly and positively related to job performance ($\bar{r} = .15$, $\bar{\rho} = .18$, 95% *C.I.* [.06, .24], $p < .01$), supporting Hypothesis 6. Hypothesis 7 predicted that year moderates the relationship between polychronicity and job performance, as occupations are becoming increasingly complex. The effect of year in a meta-regression predicting the relation of polychronicity and job performance was statistically significant ($\beta = .02$, *S.E.* = .01, 95% *C.I.* [.00, .03], $p = .03$; $k = 32$; $n = 6,071$). Hypothesis 7 was supported. Year did not moderate the relation

Table 1. Meta-Analytic results regarding the correlates of polychronicity.

	# of Sources	k	n	\bar{r}	$\bar{\rho}$	I^2	95% C.I.	z-value	Sig.	
1. Convergent Validity	12	12	4,125	.80	.97	96.49	.73, .86	12.58	<.01	
Demographic Characteristics										
1. Age	44	45	17,196	.00	.00	57.02	-.02, .03	.28	.78	
2. Tenure	23	23	5,462	-.03	-.03	18.86	-.06, .00	-1.75	.08	
3. Education	18	18	9,604	.08	.09	88.04	.02, .14	2.63	<.01	
4. Gender	46	49	19,396	.05	.06	69.78	.02, .08	3.55	<.01	
Individual Differences										
1. Openness	17	19	7,933	.12	.15	81.94	.07, .18	4.40	<.01	
2. Conscientiousness	22	25	12,887	.02	.02	96.21	-.07, .11	.44	.66	
3. Extraversion	24	27	12,934	.18	.22	90.60	.12, .24	5.84	<.01	
4. Agreeableness	17	20	11,747	.09	.11	95.93	-.01, .18	1.87	.06	
5. Neuroticism	19	21	8,111	-.02	-.02	82.62	-.08, .03	-.74	.46	
6. Impatience	29	32	8,719	.10	.13	92.29	.01, .18	2.25	.03	
7. Cognitive Ability	21	28	10,262	.06	.07	73.50	.01, .10	2.60	<.01	
Time-Keeping Strategies										
1. Planning	14	15	3,131	.00	.00	93.39	-.14, .14	-.03	.98	
2. Deadlines	8	8	2,239	.14	.19	93.13	-.03, .30	1.62	.11	
External Influences										
1. Overload	23	26	8,538	.01	.01	91.73	-.07, .09	.20	.85	
2. Multitask Pressures	15	18	3,165	.25	.31	81.27	.17, .33	5.82	<.01	

k = Number of studies; n = Total number of participants; \bar{r} = Sample-size weighted mean correlation; $\bar{\rho}$ = Sample-size weighted mean correlation corrected for unreliability; 95% C.I. = 95% Confidence interval of sample-size weighted mean correlation; z-value = z-value of sample-size weighted mean correlation; Sig. = p-value of sample-size weighted mean correlation

Table 2. Meta-Analytic results regarding the outcomes of polychronicity

	# of Sources	k	n	\bar{r}	$\bar{\rho}$	I^2	95% C.I.	z-value	Sig.	
Personal Outcomes										
1. Motivation	12	16	7,034	.11	.13	86.41	.03, .18	2.84	<.01	
2. Job Attitudes	30	35	8,867	.08	.10	89.95	.01, .15	2.35	.02	
3. Well-Being	35	43	16,451	.07	.09	96.88	-.02, .16	1.59	.11	
4. Life Balance	11	12	5,408	.06	.07	40.85	.02, .10	2.72	<.01	
Behavioral Outcomes										
1. Multitasking Behaviors	25	26	4,922	.28	.35	87.55	.20, .36	6.49	<.01	
2. Multitasking Performance	20	21	4,975	.21	.23	86.17	.12, .29	4.39	<.01	
3. Job Performance	30	32	6,071	.15	.18	92.12	.06, .24	3.20	<.01	
4. Creativity	12	16	3,937	.14	.17	84.83	.06, .22	3.32	<.01	
5. Extra-Role Behaviors	9	9	2,644	.20	.24	88.38	.09, .31	3.49	<.01	

k = Number of studies; n = Total number of participants; \bar{r} = Sample-size weighted mean correlation; $\bar{\rho}$ = Sample-size weighted mean correlation corrected for unreliability; 95% C.I. = 95% Confidence interval of sample-size weighted mean correlation; z-value = z-value of sample-size weighted mean correlation; Sig. = p-value of sample-size weighted mean correlation

of polychronicity and any other outcome (all $p > .05$).

Hypotheses 8 and 9 predicted that polychronicity is positively related to extra-role behaviors and creativity, respectively. Polychronicity had a positive and significant relation with extra-role behaviors ($\bar{r} = .20$, $\bar{\rho} = .24$, 95% *C.I.* [.09, .31], $p < .01$) and creativity ($\bar{r} = .14$, $\bar{\rho} = .17$, 95% *C.I.* [.06, .22], $p < .01$), providing support for Hypotheses 8 and 9.

Hypothesis 10 proposed that polychronicity is related to (a) job attitudes, (b) motivation and motivational orientations, (c) well-being, and (d) work-life balance. Polychronicity produced a small but statistically significant relation with job attitudes ($\bar{r} = .08$, $\bar{\rho} = .10$, 95% *C.I.* [.01, .15], $p = .02$), motivation and motivational orientations ($\bar{r} = .11$, $\bar{\rho} = .13$, 95% *C.I.* [.03, .18], $p < .01$), and work-life balance ($\bar{r} = .06$, $\bar{\rho} = .07$, 95% *C.I.* [.02, .10], $p < .01$). It did not produce a statistically significant relation with well-being ($\bar{r} = .07$, $\bar{\rho} = .09$, 95% *C.I.* [-.02, .16], $p = .11$). These results therefore support Hypotheses 10a, 10b, and 10d. They failed to support Hypothesis 10c. As a supplemental analysis, we assessed the relation of polychronicity with motivation alone, and the effect size was similar to its relation with motivation and motivational orientations together ($\bar{r} = .09$, $\bar{\rho} = .11$, 95% *C.I.* [-.08, .25], $p = .30$).

Methodological hypotheses and moderators.

Hypothesis 11 proposed that the meta-analytic intercorrelation of polychronicity measures is above .70. We observed an uncorrected meta-analytic correlation of .80 (95% *C.I.* [.73, .86]) and a corrected meta-analytic correlation of .97. These results robustly support that the polychronicity measures demonstrated sufficient convergent validity and the differences among are overstated. Hypothesis 11 was supported. We also provide convergent validity correlations separated by the measure in Table 3.

Research Question 2 queried whether the relations of polychronicity differ based on the applied measure. We analyzed each relation of polychronicity separated by the measure, and we also

conducted dummy-coded meta-regressions to assess the measures' influence on observed relations. These results are provided in Supplemental Material E. All possible dummy-coded meta-regressions produced 250 total comparisons, of which 25 were statistically significant. Few, if any, systematic patterns emerged. Each scale had 100 total comparisons. The PAI and PMTS had the fewest significant comparisons at 6 and 4, respectively. The IPV, MPI, and other measures had slightly more significant comparisons respectively at 12, 13, and 14. Demographic characteristics seemed to produce the most significant comparisons of measures, but this may be due to the larger number of included samples compared to other variables. Therefore, it appears that the applied measure did not significantly influence our observed effects, as the statistically significant effects could not be reliably argued to be more than spurious results.

Research Question 3 queried whether the relations of polychronicity differ based on its temporal separation from other variables. Supplemental Material F includes these results. Polychronicity was almost always measured cross-sectionally with proposed antecedents, preventing an assessment of this research question regarding the antecedents. Polychronicity was most often measured cross-sectionally with outcomes, but more authors did measure polychronicity before its proposed outcomes. Four outcome relations had at least three studies measure polychronicity before its outcome and three studies cross-sectionally with its outcome. Only one of these relations had a significant difference in its effects (multitasking behaviors), and the effect was stronger when polychronicity was measured before ($\bar{r} = .51$, $\bar{\rho} = .64$, 95% *C.I.* [.23, .72], $p < .01$) than cross-sectionally ($\bar{r} = .23$, $\bar{\rho} = .29$, 95% *C.I.* [.16, .30], $p < .01$).

Discussion

Our theoretical proposals and meta-analytic findings achieved the three objectives of the current article: unify current findings on polychronicity, apply modern perspectives on multitasking to understand polychronicity, and apply a P-E fit

Table 3. Meta-Analytic results regarding the convergent validity of polychronicity measures

	1	2	3	4	5
1. PAI	–				
2. IPV	.84 [.76, .89] 5; 1,300	–			
3. PMTS	.75 [.72, .78] 1; 732	.73 [.70, .76] 2; 898	–		
4. MPI	.71 [.65, .76] 2; 924	.82 [.74, .87] 7; 3,422	.72 [.68, .75] 1; 732	–	
5. Other	.69 [.58, .76] 1; 139	.80 [.74, .86] 1; 140	–	.53 [.41, .63] 1; 167	.41 [.27, .53] 1; 167

Note: PAI = Polychronic Attitudes Inventory; IPV = Inventory of Polychronic Values; PMTS = Polychronic-Monochronic Tendency Scale; MPI = Multitasking Preference Inventory. The first number of the first row in each cell is the meta-analytic correlation; the numbers in brackets are the 95%CI; the first number of the second row of each cell is the number of studies used to calculate the estimate; and the final number is the sample size used to calculate the estimate.

perspective to detail the relations of polychronicity. Our results demonstrated that the meta-analytic correlation among polychronicity measures was extremely large and our observed relations did not systematically differ based on the applied measure. This indicates that the differences among these measures are overstated, and they are largely indistinguishable. Because we also argued that these measures solely gauge task-switching preferences, our results also indicate that no measure significantly differs from the others by incorporating dual-tasking preferences. This inclination was further supported by the moderation analyses of multitasking behaviors. Polychronicity, although it theoretically represents a preference for both dual-tasking and task-switching, was shown to more strongly relate to task-switching than dual-tasking behaviors³. Again, this result suggests that current measures of polychronicity overlook preferences for dual-tasking and more strongly gauge a preference for task-switching. Thus, one of the two essential aspects of polychronicity may be largely absent from modern measures (Bluedorn et al., 1999; Poposki & Oswald, 2010), which poses many theoretical implications and directions for future research.

We also assessed the relations of polychronicity as guided by P-E fit theory. As predicted, polychronicity significantly related to openness,

extraversion, impatience, and cognitive ability. These results suggest that people may prefer to multitask because it fits with their natural characteristics. Polychronicity also significantly related to multitasking pressures, suggesting that polychrons may matriculate to contexts that require multitasking. At the same time, polychronicity did not significantly relate to many commonly studied individual differences that did not have a clear theoretical association. This finding supports the applied P-E fit perspective, as relations that lacked theoretical justifications were empirically unsupported.

Further, polychronicity had a significant and positive relation with each behavioral outcome, providing robust support that modern workplaces are benefitted by those who prefer to multitask. The relation of polychronicity and job performance was also significantly moderated by publication year, which corresponds to the growing complexity and digitalization of modern work. Not only is polychronicity beneficial, but it appears to be becoming even more beneficial in recent years. Polychronicity was also shown to predict most positive personal outcomes, again in agreement with our P-E fit perspective. As people may be expected to multitask at work, these results suggest that polychrons are personally benefitted by their natural dispositions because they better fit their environments. It should be noted, though, that most studies used

cross-sectional designs when testing these relations. Based on these results, we discuss several theoretical implications and directions for research, followed by considerations for practice.

Theoretical implications and directions for future research

Polychronicity as a preference for dual-tasking and task-switching. The current article showed that the four common measures of polychronicity are largely interchangeable (Bluedorn et al., 1999; Kaufman et al., 1991; Lindquist & Kaufman-Scarborough, 2007; Poposki & Oswald, 2010). Their content appears to gauge a preference for task-switching alone, indicating that current research on polychronicity investigates only a partial view of the construct. A clear future direction is the creation of a bidimensional polychronicity measure that assesses preferences for both task-switching and dual-tasking. Such a measure would more closely adhere to current understandings of multitasking, and it could differentiate people that may have a preference for one type of multitasking but not the other.

Once such a measure is created, all prior findings of polychronicity should be reassessed. To begin, some authors question the utility of polychronicity, as prior studies intermittently show that it can be a poor predictor of relevant outcomes (Grawitch & Barber, 2013; Kirchberg et al., 2015; König et al., 2005). It is likely that many authors assessed the relation of polychronicity measures with outcomes that represent dual-tasking. For instance, König et al. (2005) determined that polychronicity is not a predictor of multitasking performance; however, their indicator of multitasking performance involved answering questions while completing computer tasks (dual-tasking) as well as immediately completing new computer tasks (task-switching), and a robust relation may exist with this exact same indicator of multitasking performance when polychronicity is reassessed using a bidimensional measure. Even relations of polychronicity supported in the current meta-analysis should be reassessed via this perspective, as they may be

either stronger or weaker when gauged via a more comprehensive measure. Notably, the relation of polychronicity and job performance may differ depending on whether preferences for task-switching, dual-tasking, or both are assessed. Modern occupations may be heavily reliant on both types of multitasking, but it is also possible that expectations in these occupations only require one or the other. For instance, a secretary may be expected to switch between planning schedules and drafting emails whenever the need arises, but they may not be expected to both plan schedules and draft emails simultaneously. Thus, the entire study of polychronicity can start anew with the development of a bidimensional measure.

New theoretical perspectives of multitasking are also continuously developed from this differentiation of task-switching and dual-tasking, which could be applied to understand polychronicity now that such a distinction is recognized. Particularly, Koch et al. (2018) recently unified disparate viewpoints on task-switching and dual-tasking to identify three complementary research perspectives focused on: cognitive bottlenecks, cognitive flexibility, and cognitive plasticity. Research within and across these three domains is complementary rather than competitive, whether used to characterize the performance of task-switching or dual-tasking. Future research should assess the role polychronicity can play in these perspectives. Polychrons may prefer multitasking because they do not experience cognitive bottlenecks and enjoy cognitive stimulation produced by such bottlenecks; polychrons may prefer multitasking because they possess enhanced cognitive control processes; polychrons may prefer multitasking because they have greater cognitive plasticity to adapt to such challenges; or polychrons may prefer multitasking due to a combination of all three (Koch et al., 2018). Future research should investigate each perspective while incorporating preferences for both task-switching and dual-tasking, as differences between the two may exist when studying polychronicity.

Relatedly, future researchers could expand current perspectives on polychronicity by further

investigating cognitive mechanisms, as Koch et al.'s (2018) perspective of multitasking heavily draws from cognitive theory. Investigating differences in cognitive structures, flexibility, and plasticity between polychrons and monochrons could identify differing antecedents and outcomes of preferences for these two types of multitasking. For instance, dual-tasking abilities may be more limited by capabilities of cognitive processing (e.g., bottlenecks), whereas task-switching may be more limited by capabilities of cognitive flexibility (Koch et al., 2018; Strobach et al., 2014). If the case, the preferences for dual-tasking may be more associated with cognitive processing capabilities, whereas preferences for task-switching may be more associated with cognitive flexibility. Such investigations could therefore provide initial avenues to identify differential relations of different types of polychronicity.

Polychronicity and P-E fit. Our P-E fit perspective suggests that polychronicity is best understood by interpreting interactions between people and their environment. The growing autonomy of employees indicates that preferences will only continue to be more important in modern workplaces, as employees are increasingly able to choose how to perform their duties. We argued that polychrons experience greater fit with contexts that require multitasking, which causes them to benefit from fit's outcomes. By being drawn to these tasks, polychrons may also be more likely to develop effective behavioral routines for multitasking over time. Researchers should further test whether such notions are true. The current meta-analysis supported a relation of polychronicity with motivation and motivational orientations, and it showed that polychrons are more likely to choose to multitask; however, not enough prior studies exist to meta-analytically assess the mediators between polychronicity and performance. Future research should conduct such studies, with an initial focus on the possible mediating effects of motivation, improved behavioral routines, and mediating mechanisms identified in prior research on P-E fit.

A further avenue of future investigation is to directly integrate P-E fit theory into the study of polychronicity, such as the application of van Vianen's three basic principles (2018). van Vianen (2018) proposed that fit theories share the basic principles of: (a) the person and environment together predict behavior, (b) outcomes are optimal when personal and environmental attributes are compatible, and (c) only the amount of misfit matters in predicting outcomes. Future research should explore whether these principles apply to polychronicity, as doing so could further establish the ability of P-E fit theory to explain polychronicity. However, the third principle suggests that a person with "too much" polychronicity would incur the same detrimental outcomes as a context with "too many" multitasking demands. While we believe that P-E fit theory can explain polychronicity, we are unsure whether this principle applies in the current context, and it has been similarly questioned by recent authors (De Cooman et al., 2019; Lennard et al., 2021). A person with too much polychronicity may experience reduced motivation because they cannot fully apply their preferred strategy, but a context with too many multitasking demands may produce heightened anxiety because they may feel task overload. While both detrimental, such a possibility does indicate that these three principles may not be universal, as excessive polychronicity or multitasking demands may produce different outcomes.

Researchers can mimic prior studies using fit theory to develop research streams on polychronicity, and a recent investigation could provide a model to investigate the above proposal. Lennard et al. (2021) developed a "dynamic theory of justice" by integrating fit theory and justice theory to argue that perceived justice is not always beneficial. They show that justice provided by the environment must fit with the characteristics of the receiver, and both types of justice misfit (excess and deficiency) produce detrimental outcomes; however, they also show that types of justice misfit produce differing negative effects, which conflicts with van Vianen's (2018) third basic principle of fit theory. Deficient justice

reduces positive affect, whereas excess justice produces rumination. Future researchers could mimic their approach to theorizing and research design to investigate the differential effects of excessive and deficient multitasking pressures, which may differentially produce reduced motivation and heightened anxiety.

Similarly, the association of polychronicity with P-E fit theory can provide justification for future investigations that have associated fit theory with alternative perspectives and theories. People are believed to seek fit with their environments in part because it enables them to experience consistency and reduced uncertainty, and prior research has associated fit with theories associated with consistency such as balance state theory, self-affirmation theory, social comparison theory, and self-consistency theory (Nolan & Harold, 2010; van Vianen, 2018; Yu, 2009). People may prefer multitasking or single tasking because it enables them to complete their tasks in a manner that personally reduces uncertainty, and future research should test whether these theories are viable for understanding polychronicity. Likewise, some authors have recommended that theories of regulatory focus may be apt in understanding personal outcomes of fit, calling for research applying fit theory and regulatory focus theory (Guan et al., 2021; Johnson et al., 2013; van Vianen, 2018). These authors argue that perceived fit is inherently associated with self-regulation, as people monitor their environment and react accordingly to improve fit. It is possible that polychronicity is intertwined with self-regulatory mechanisms, and a self-regulation approach to polychronicity may be necessary to fully understand the construct. Thus, future research should strive towards integrations of these theories.

Furthermore, P-E fit theory can identify novel relations of the construct. Authors have suggested that not all aspects of fit produce similar outcomes, and some types of fit are more important than others (van Vianen, 2018; Vogel et al., 2016). This has caused recent authors to suggest that researchers should identify the people's perceived importance of certain types of fit. For instance, a

person may prefer to multitask across all contexts, but they may not consider multitasking to be important to their well-being or behaviors. In such a situation, the person may be relatively resilient to poor fit regarding their preference for multitasking. On the other hand, a person may feel that multitasking is extremely important to their well-being, and they may experience detrimental outcomes at the slightest perception of polychronicity misfit. Perceived importance of multitasking may moderate the relation of polychronicity and its outcomes. Investigating such a phenomenon would not only provide insights into polychronicity, but it would also incorporate constructs that are rarely discussed in the polychronicity literature.

We also suggest that modern trends in research on P-E fit theory may be particularly informative when applied to polychronicity (Guan et al., 2021; Johnson et al., 2013; Nolan & Harold, 2010; Yu, 2009). van Vianen (2018) proposed 11 future directions for research on fit theory, which represent divergences from current applications of the theory. Many of these suggestions were integrated throughout the current article, but researchers should directly refer to these suggestions in crafting their future studies. Also, P-E fit has always been recognized as a multilevel phenomenon, wherein people may have different perceptions of fit with their workgroup, organization, and profession; however, researchers have repeatedly stressed that multilevel perspectives are relatively uncommon in fit research (De Cooman et al., 2019). Some authors have explored polychronicity at the team-level (e.g., Mohammed & Nadkarni, 2014), but research on multiple levels simultaneously is not evident in the current literature. Such investigations could test whether polychronicity fit with a person's work unit, organization, or even career is most important in determining the many outcomes of polychronicity.

Polychronicity correlates and outcomes. Our meta-analysis identified several relations that demand further research. Multitasking pressures produced sizable relations with polychronicity. We argued that polychrons matriculate to contexts that require multitasking, which coincides

with research that considers polychronicity to be a relatively stable individual difference. Polychronicity may be more malleable than commonly assumed, however (Kirchberg et al., 2015; König & Waller, 2010; Magen, 2017). Few, if any, studies have applied research designs to assess the malleability of polychronicity and/or reciprocal relations with contextual variables, and the current meta-analysis was unable to examine the malleability of polychronicity because the current literature is dominated by cross-sectional designs. Future research should investigate the relation of polychronicity with contextual variables using naturalistic designs that can capture real-world changes and casual effects (e.g., intensive longitudinal designs). Notably, authors are increasingly using daily diary studies that can assess daily changes and lagged effects (Howard & Hoffman, 2018), and some researchers have conducted studies with multiple measurement occasions over the course of months to observe changes in individual differences typically believed to be stable (e.g., personality) (Li et al., 2021; Wu et al., 2020). Via these designs, researchers can determine whether polychronicity is indeed a stable individual difference or mutable response to the environment, wherein people may alter their preferences after being repeatedly exposed to environments that call for multitasking as they learn the benefits of the behavioral approach.

Similarly, P-E fit inherently involves interactions between a person and their environment (Mathieu & Chen, 2011; Scherbaum & Ferreter, 2009), and Cotte and Ratneshwar (1999) argued that polychronic behavior occurs due to an interaction between the person, their context, and their culture. The study of people and their environment, including context and culture, often demands multilevel investigations to properly model and understand these effects, but few studies have conducted multilevel investigations to study polychronicity. We urge future researchers to apply research designs that can model these effects. Such multilevel investigations may be necessary to understand both polychronicity and even P-E fit, as several authors have likewise

called for multilevel investigations to understand the occurrence and change of P-E fit (Caldwell et al., 2004; De Cooman et al., 2019; Tak, 2011).

Future research should also assess facet-level relations of personality and polychronicity, now that sizable relations have been supported at the construct-level. We argued that openness is related to polychronicity due to associations with cognitive flexibility, but only certain facets of openness relate to cognitive flexibility, such as creativity, inquisitiveness, and unconventionality (Lee & Ashton, 2005). Other facets are less related, such as aesthetic appreciation, and they are less likely to explain why certain people prefer to multitask. Further, extraversion and impatience produced sizable relations with polychronicity, and further investigations are needed to understand these associations. Impatience refers to the tendency to be energetic and impulsive, whereas Extraversion includes the facets of liveliness and sensation seeking that describe, in part, the tendency to pursue stimuli (Lee & Ashton, 2005). Individuals characterized by these facets may be more likely to switch between multiple tasks to sequentially or simultaneously experience more stimuli. Studying personality dimensions in a global manner obfuscates these differences, but a facet-level approach can provide a more precise theoretical understanding of both polychronicity and personality. This facet-level approach is becoming more common in the study of personality (Howard & Van Zandt, 2020; Zettler et al., 2020), and such investigations could better integrate research on polychronicity and personality.

Regarding polychronicity's outcomes, it is now robustly supported that polychronicity relates to both multitasking performance and job performance. We argued that occupations are becoming increasingly complex and increasingly require multitasking, but surprisingly little research has systematically determined the extent of multitasking required across occupations. Instead, authors have largely assumed that certain occupations require multitasking (Asghar et al., 2020, 2021). Future researchers should

place a greater focus on characterizing the multitasking requirements of specific occupations, and then perform analyses that assess interactions between these multitasking requirements and polychronicity. By doing so, researchers can obtain a firmer perspective regarding occupations that may benefit from polychronicity, but it can also be verified that the need of multitasking is the cause of polychronicity's relation with job performance in these occupations. It should also be recognized that little is known about preferences for dual-tasking or true preferences for multitasking (including both task-switching and dual-tasking). Therefore, an almost uncountable number of future directions remain regarding the study of polychronicity and its outcomes.

In conducting these studies, researchers should strive to apply research designs that can support causal effects, such as panel or experimental designs. At a minimum, researchers should employ survey designs with appropriate temporal separation between polychronicity and other constructs. As our meta-analysis showed that most researchers utilize cross-sectional designs, the causal effects surrounding polychronicity are still uncertain, and most relations of the construct should be reassessed using more robust research designs. Likewise, researchers should apply research designs that most appropriately test specific effects. For instance, we intended to assess whether the relation of polychronicity and job performance differed based on whether the latter was subjectively or objectively assessed, but too few authors measured objective job performance in testing this relation. While subjective job performance can be valid for understanding employee performance, supplementing these studies with objective job performance can provide a more complete understanding of this relation. Thus, these findings further increase the scope of future research directions regarding polychronicity.

Practical implications

The current results also provide significant practical implications. Practitioners should recognize that a person's attributes (e.g., age, gender) has

little correspondence with their preference for multitasking, and a person should not be chosen for positions that require multitasking due to assumptions regarding their personal characteristics. At the same time, practitioners should recognize that modern measures of polychronicity do not gauge the full spectrum of the construct, and even administering widely used measures to assess employees' polychronicity may not provide accurate depictions. For this reason, practitioners should be aware of the multiple nuances involved in staffing employees for jobs that require multitasking.

Regarding the outcomes of polychronicity, practitioners should be aware that those who prefer to multitask are, on average, better at multitasking. Because occupations are becoming more complex, effective multitaskers are likewise becoming more valuable to organizations for their job performance, extra-role behaviors, and even creativity. While practitioners may not want to yet select for polychronicity, they may instead develop avenues to encourage employees to develop effective multitasking routines. Employees could undergo training programs to develop their multitasking abilities (Dux et al., 2009; Takeuchi et al., 2014), or managers could emphasize the importance of multitasking in daily activities (Piercy & Underhill, 2020).

Limitations

Meta-analytic results are influenced, in part, by the methodological and analytical decisions of researchers, and meta-analytic findings are not infallible reflections of phenomena. We took several steps to address this concern, such as assessing indices of publication bias and undue outliers. We also replicated our meta-analytic results using alternative statistical approaches. As with any study, other approaches could have been taken that may produce alternative findings. For this reason, we recommend for future authors to conduct additional meta-analyses on polychronicity to ensure that our search criteria did not sway the current findings. Notably, our

meta-analytic dataset included samples from varied populations, but it cannot be ensured that our results generalize to all populations. Future research should strive to produce even more generalizable findings.

Further, we believe that our construct categories meaningfully group constructs with differing labels, but researchers may have their own preferences regarding the grouping of constructs. We provide our meta-analytic database in Supplemental Material B for researchers to replicate our results using alternative grouping approaches. For instance, some researchers may be particularly interested in the relation of polychronicity with motivational orientations alone, which can be tested with this supplemental material. Similarly, certain variables included in our construct categories were recognized as proxies in their original studies. For instance, we included GPA in the construct category of cognitive ability because the relevant studies used GPA as a proxy for cognitive ability, but GPA is determined by much more than cognitive ability alone. Interested researchers could use Supplemental Material B to recalculate our results while excluding these proxy variables. While our inferences were unchanged when excluding proxy variables, such as GPA, we nevertheless urge researchers to test these analyses for themselves. Thus, the present databases can be used for multiple subsequent investigations.

Meta-analyses are bound by existing studies, preventing the assessment of certain relations. For instance, not enough studies have investigated the antecedents and outcomes of polychronicity using longitudinal designs that assess all three at multiple timepoints. For this reason, the current article could not perform meta-analyses when only including studies that measured polychronicity before its outcomes (or antecedents) as well as only including studies that measured polychronicity after its outcomes (or antecedents), which could provide robust insights regarding whether traditional outcomes of polychronicity should be conceptualized as such. Similarly, the vast

majority of studies on polychronicity rely on single-source, self-report designs, and we could not assess differences in the relations of polychronicity by rating source for most analyses. We call for future researchers to perform such analyses on polychronicity, as they currently represent clear gaps between theory and empirical research on the construct.

Lastly, some studies included in our meta-analytic database did not study polychronicity in the workplace. For instance, some studies on the relation of polychronicity with multitasking behaviors assessed their relation via a lab methodology. We believe that this is a benefit of the current work, as it supports that our observed meta-analytic effects may generalize to a broad range of scenarios. Future researchers, however, should apply our P-E fit theory perspective to hypothesize and test contextual differences regarding polychronicity. For instance, a person high in polychronicity may multitask at work but not at home; alternatively, the same person may multitask when they feel efficacious but single-task when they do not. In these cases, the perceived fit of multitasking may not be universal, and it may instead depend for each individual circumstance for a person. Therefore, future research should both study polychronicity across contexts as well as consider intensive longitudinal designs (e.g., daily diary and EMA studies) that can capture the dynamics of specific interactions.

Conclusion

With the growing interest in personal attributes associated with the treatment of time, the study of polychronicity continues to likewise grow in popularity. Our goal was to unify research on polychronicity, incorporate emergent perspectives on multitasking, and propose a novel interpretation of the construct. By achieving these goals, the current article highlights the importance of the construct to the modern workplace, but it also emphasizes that much is still unknown regarding the construct. Therefore,

we reported a meta-analysis that summarized prior research, and the implications of the current work also opens many avenues for future studies.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article

ORCID iDs

Matt C. Howard  <https://orcid.org/0000-0002-2893-0213>

Joshua E. Cogswell  <https://orcid.org/0000-0003-2031-9249>

Supplemental material

Supplemental material for this article is available online.

Notes

1. Google Scholar automatically searches for variations of words, and therefore more relevant results are obtained when full words are searched. For this reason, we used the most common use of the words or phrases when performing our searches, such as using “Polychronicity” for our Google Scholar search
2. We did not conduct searches for “multitasking” or “task-switching” alone, because these searches produce an excessive number of studies that investigated behavioral multitasking or task-switching without including polychronicity. Via our included search terms, we were able to identify any study that included polychronicity while excluding those that did not, resulting in comprehensive and effective database searches.
3. It is recognized that our moderation analysis for multitasking performance was not statistically significant, but polychronicity was again more strongly related to task-switching than dual-tasking performance in this analysis.

References

- Ackerman, P. L., & Kanfer, R. (2020). Work in the 21st century: New directions for aging and adult development. *American Psychologist, 75*(4), 486. <https://doi.org/10.1037/amp0000615>
- Adler, R. F., & Benbunan-Fich, R. (2013). Self-interruptions in discretionary multitasking. *Computers in Human Behavior, 29*(4), 1441–1449. <https://doi.org/10.1016/j.chb.2013.01.040>
- Aluja, A., Garcia, O., & Garcia, L. F. (2003). Relationships among extraversion, openness to experience, and sensation seeking. *Personality and Individual Differences, 35*(3), 671–680. [https://doi.org/10.1016/S0191-8869\(02\)00244-1](https://doi.org/10.1016/S0191-8869(02)00244-1)
- Arndt, A., Arnold, T. J., & Landry, T. D. (2006). The effects of polychronic-orientation upon retail employee satisfaction and turnover. *Journal of Retailing, 82*(4), 319–330. <https://doi.org/10.1016/j.jretai.2006.08.005>
- Asghar, M., Gull, N., Tayyab, M., Zhijie, S., & Tao, X. (2020). Polychronicity at work: Work engagement as a mediator of the relationships between job outcomes. *Journal of Hospitality and Tourism Management, 45*, 470–478. <https://doi.org/10.1016/j.jhtm.2020.10.002>
- Asghar, M., Tayyab, M., Gull, N., Zhijie, S., Shi, R., & Tao, X. (2021). Polychronicity, work engagement, and turnover intention: The moderating role of perceived organizational support in the hotel industry. *Journal of Hospitality and Tourism Management, 49*, 129–139. <https://doi.org/10.1016/j.jhtm.2021.09.004>
- 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), 205–231. <https://doi.org/10.1108/02683949910263747>
- Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods, 1*(2), 97–111. <https://doi.org/10.1002/jrsm.12>
- Bosco, F. A., Aguinis, H., Singh, K., Field, J. G., & Pierce, C. A. (2015). Correlational effect size benchmarks. *Journal of Applied Psychology, 100*(2), 431. <https://doi.org/10.1037/a0038047>
- Boxer, P., Groves, C. L., & Docherty, M. (2015). Video games do indeed influence children and adolescents’ aggression, prosocial behavior, and academic performance: A clearer reading of Ferguson (2015). *Perspectives on Psychological*

- Science*, 10(5), 671–673. <https://doi.org/10.1177/1745691615592239>
- Brown, S. P., Jones, E., & Leigh, T. W. (2005). The attenuating effect of role overload on relationships linking self-efficacy and goal level to work performance. *Journal of Applied Psychology*, 90(5), 972. <https://doi.org/10.1037/0021-9010.90.5.972>
- Büchler, N., ter Hoeven, C. L., & van Zoonen, W. (2020). Understanding constant connectivity to work: How and for whom is constant connectivity related to employee well-being? *Information and Organization*, 30(3), 100302. <https://doi.org/10.1016/j.infoandorg.2020.100302>
- Cable, D. M., & Edwards, J. R. (2004). Complementary and supplementary fit: A theoretical and empirical integration. *Journal of Applied Psychology*, 89(5), 822. <https://doi.org/10.1037/0021-9010.89.5.822>
- Caldwell, S. D., Herold, D. M., & Fedor, D. B. (2004). Toward an understanding of the relationships among organizational change, individual differences, and changes in person-environment fit: A cross-level study. *Journal of Applied Psychology*, 89(5), 868. <https://doi.org/10.1037/0021-9010.89.5.868>
- Caplan, R. D. (1987). Person-environment fit theory and organizations: Commensurate dimensions, time perspectives, and mechanisms. *Journal of Vocational Behavior*, 31(3), 248–267. [https://doi.org/10.1016/0001-8791\(87\)90042-X](https://doi.org/10.1016/0001-8791(87)90042-X)
- Carpenter, N. C., Son, J., Harris, T. B., Alexander, A. L., & Horner, M. T. (2016). Don't forget the items: Item-level meta-analytic and substantive validity techniques for reexamining scale validation. *Organizational Research Methods*, 19(4), 616–650. <https://doi.org/10.1177/1094428116639132>
- Chen, J. (2022). A juggling act: CEO polychronicity and firm innovation. *The Leadership Quarterly*, 33(3), 101380. <https://doi.org/10.1016/j.leaqua.2019.101380>
- Cheung, M. W. L. (2015). *Meta-analysis: A structural equation modeling approach*. John Wiley & Sons.
- Chisholm, C. D., Collison, E. K., Nelson, D. R., & Cordell, W. H. (2000). Emergency department workplace interruptions are emergency physicians “interrupt-driven” and “multitasking”? *Academic Emergency Medicine*, 7(11), 1239–1243. <https://doi.org/10.1111/j.1553-2712.2000.tb00469.x>
- Cochrum-Nguyen, F. L. (2013). Predicting job performance and job satisfaction: An examination of the Five-Factor Model of personality, polychronicity, and role overload. Unpublished Master's thesis). San Diego State University, San Diego, CA.
- 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
- Cooper, H., Hedges, L. V., & Valentine, J. C. (2019). *The handbook of research synthesis and meta-analysis*. Russell Sage Foundation.
- Cotte, J., & Ratneshwar, S. (1999). Juggling and hopping: What does it mean to work polychronically? *Journal of Managerial Psychology*, 14(3/4), 184–204. <https://doi.org/10.1108/02683949910263738>
- Dalenogare, L. S., Benitez, G. B., Ayala, N. F., & Frank, A. G. (2018). The expected contribution of Industry 4.0 technologies for industrial performance. *International Journal of Production Economics*, 204, 383–394. <https://doi.org/10.1016/j.ijpe.2018.08.019>
- Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment: An individual-differences model and its applications*. University of Minnesota press.
- Dean, D., & Webb, C. (2011) Recovering from information overload. McKinsey Quarterly Retrieved from: <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/recovering-from-information-overload>
- De Bruin, R., & Barber, L. K. (2019). Social judgments of electronic multitasking in the workplace: The role of contextual and individual factors.

- Computers in Human Behavior*, 94, 110–121. <https://doi.org/10.1016/j.chb.2019.01.014>
- De Cooman, R., Mol, S. T., Billsberry, J., Boon, C., & Den Hartog, D. N. (2019). Epilogue: Frontiers in person–environment fit research. *European Journal of Work and Organizational Psychology*, 28(5), 646–652. <https://doi.org/10.1080/1359432X.2019.1630480>
- DeSimone, J. A., Köhler, T., & Schoen, J. L. (2019). If it were only that easy: The use of meta-analytic research by organizational scholars. *Organizational Research Methods*, 22(4), 867–891. <https://doi.org/10.1177/1094428118756743>
- DeYoung, C. G., Peterson, J. B., & Higgins, D. M. (2005). Sources of openness/intellect: Cognitive and neuropsychological correlates of the fifth factor of personality. *Journal of Personality*, 73(4), 825–858. <https://doi.org/10.1111/j.1467-6494.2005.00330.x>
- Diener, E., & Lucas, R. (2000). *Subjective emotional well-being*. In M. Lewis & J. M. Haviland–Jones (Eds.), *Handbook of emotions* (2nd ed., pp. 325–337). New York: Guilford.
- Dux, P. E., Tombu, M. N., Harrison, S., Rogers, B. P., Tong, F., & Marois, R. (2009). Training improves multitasking performance by increasing the speed of information processing in human prefrontal cortex. *Neuron*, 63(1), 127–138. <https://doi.org/10.1016/j.neuron.2009.06.005>
- Edwards, J. R., Caplan, R. D., & Van Harrison, R. (1998). Person–environment fit theory. In C. Cooper (Ed.), *Theories of Organizational Stress* (pp. 28–67). Oxford: Oxford University Press.
- Edwards, J. R., & Shipp, A. J. (2007). The relationship between person–environment fit and outcomes: An integrative theoretical framework. In C. Ostroff & T. A. Judge (Eds.), *Perspectives on organizational fit* (pp. 209–258). Lawrence Erlbaum Associates Publishers.
- Edwards, J. R., & Van Harrison, R. (1993). Job demands and worker health: three-dimensional reexamination of the relationship between person–environment fit and strain. *Journal of Applied Psychology*, 78(4), 628.
- Elsbach, K. D., & Kramer, R. M. (2003). Assessing creativity in Hollywood pitch meetings: Evidence for a dual-process model of creativity judgments. *Academy of Management Journal*, 46(3), 283–301. <https://doi.org/10.2307/30040623>
- Ferguson, C. J. (2015). Do angry birds make for angry children? A meta-analysis of video game influences on children’s and adolescents’ aggression, mental health, prosocial behavior, and academic performance. *Perspectives on Psychological Science*, 10(5), 646–666. <https://doi.org/10.1177/1745691615592234>
- Furuya-Kanamori, L., & Doi, S. A. (2016). Angry birds, angry children, and angry meta-analysts: A reanalysis. *Perspectives on Psychological Science*, 11(3), 408–414. <https://doi.org/10.1177/1745691616635599>
- Gevers, J., Mohammed, S., & Baytalskaya, N. (2015). The conceptualisation and measurement of pacing styles. *Applied Psychology*, 64(3), 499–540. <https://doi.org/10.1111/apps.12016>
- Grawitch, M. J., & Barber, L. K. (2013). In search of the relationship between polychronicity and multitasking performance. *Journal of Individual Differences*, 34(4), 222–229. <https://doi.org/10.1027/1614-0001/a000118>
- Guan, Y., Deng, H., Fan, L., & Zhou, X. (2021). Theorizing person–environment fit in a changing career world: Interdisciplinary integration and future directions. *Journal of Vocational Behavior*, 126, 103557. <https://doi.org/10.1016/j.jvb.2021.103557>
- Guan, Y., Deng, H., Risavy, S. D., Bond, M. H., & Li, F. (2011). Supplementary fit, complementary fit, and work-related outcomes: The role of self-construal. *Applied Psychology*, 60(2), 286–310. <https://doi.org/10.1111/j.1464-0597.2010.00436.x>
- Hall, S. M., & Brannick, M. T. (2002). Comparison of two random-effects methods of meta-analysis. *Journal of Applied Psychology*, 87(2), 377. <https://doi.org/10.1037/0021-9010.87.2.377>
- 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>

- Heller, D., & Watson, D. (2005). The dynamic spillover of satisfaction between work and marriage: The role of time and mood. *Journal of Applied Psychology, 90*(6), 1273. <https://doi.org/10.1037/0021-9010.90.6.1273>
- Hodgson, G. M. (2016). The future of work in the twenty-first century. *Journal of Economic Issues, 50*(1), 197–216. <https://doi.org/10.1080/00213624.2016.1148469>
- Holland, J. L. (1971). A theory-ridden, computerless, impersonal vocational guidance system. *Journal of Vocational Behavior, 1*(2), 167–176.
- Howard, M. C., & Cogswell, J. E. (2018). The “other” relationships of self-assessed intelligence: A meta-analysis. *Journal of Research in Personality, 77*, 31–46. <https://doi.org/10.1016/j.jrp.2018.09.006>
- Howard, M. C., & Hoffman, M. E. (2018). Variable-centered, person-centered, and person-specific approaches: Where theory meets the method. *Organizational Research Methods, 21*(4), 846–876. <https://doi.org/10.1177/1094428117744021>
- Howard, M. C., & Van Zandt, E. C. (2020). The Discriminant Validity of Honesty-Humility: A Meta-Analysis of the HEXACO, Big Five, and Dark Triad. *Journal of Research in Personality, 87*, 103982. <https://doi.org/10.1016/j.jrp.2020.103982>
- Hunter, J. E. (1986). Cognitive ability, cognitive aptitudes, job knowledge, and job performance. *Journal of Vocational Behavior, 29*(3), 340–362. [https://doi.org/10.1016/0001-8791\(86\)90013-8](https://doi.org/10.1016/0001-8791(86)90013-8)
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings*. Sage.
- Huxhold, O., Li, S. C., Schmiedek, F., & Lindenberger, U. (2006). Dual-tasking postural control: Aging and the effects of cognitive demand in conjunction with focus of attention. *Brain Research Bulletin, 69*(3), 294–305. <https://doi.org/10.1016/j.brainresbull.2006.01.002>
- Ilies, R., Wilson, K. S., & Wagner, D. T. (2009). The spillover of daily job satisfaction onto employees’ family lives: The facilitating role of work-family integration. *Academy of Management Journal, 52*(1), 87–102.
- Jacoby, J. (1984). Perspectives on information overload. *Journal of Consumer Research, 10*(4), 432–435. <https://doi.org/10.1086/208981>
- Jak, S. (2015). *Meta-analytic structural equation modelling*. Springer.
- Jak, S., Li, H., Kolbe, L., & Cheung, M. (2020). Meta-analytic structural equation modeling made easy: A tutorial and web application for one-stage MASEM. Preprint.
- Johnson, R. E., Taing, M. U., Chang, C.-H., & Kawamoto, C. K. (2013). A self-regulation approach to person-environment fit. In Kristof-Brown, A. L., & Billsberry, J. (Eds.), *Organizational fit: Key issues and new directions* (pp. 74–98). Wiley Blackwell. <https://doi.org/10.1002/9781118320853.ch4>
- Judge, T. A., & Watanabe, S. (1993). Another look at the job satisfaction-life satisfaction relationship. *Journal of Applied Psychology, 78*(6), 939. <https://doi.org/10.1037/0021-9010.78.6.939>
- Kantrowitz, T. M., Grelle, D. M., Beaty, J. C., & Wolf, M. B. (2012). Time is money: Polychronicity as a predictor of performance across job levels. *Human Performance, 25*(2), 114–137. <https://doi.org/10.1080/08959285.2012.658926>
- Karatepe, O. M. (2013). The effects of work overload and work-family conflict on job embeddedness and job performance: The mediation of emotional exhaustion. *International Journal of contemporary Hospitality management*.
- Kass, S. J., & Vodanovich, S. J. (1990). Boredom proneness: Its relationship to Type A behavior pattern and sensation seeking. *Psychology: A Journal of Human Behavior, 27*(3), 7–16. <https://doi.org/10.2466/pr0.1991.69.3f.113>
- 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>
- Kayaalp, A. (2014). The octopus approach in time management: Polychronicity and creativity. *Military Psychology, 26*(2), 67–76. <https://doi.org/10.1037/mil0000032>
- Kepes, S., McDaniel, M. A., Brannick, M. T., & Banks, G. C. (2013). Meta-analytic reviews in

- the organizational sciences: Two meta-analytic schools on the way to MARS (the Meta-Analytic Reporting Standards). *Journal of Business and Psychology*, 28(2), 123–143. <https://doi.org/10.1007/s10869-013-9300-2>
- Kiesel, A., Steinhauser, M., Wendt, M., Falkenstein, M., Jost, K., Philipp, A. M., & Koch, I. (2010). Control and interference in task switching—A review. *Psychological Bulletin*, 136(5), 849. <https://doi.org/10.1037/a0019842>
- Kirchberg, D. M., Roe, R. A., & Van Eerde, W. (2015). Polychronicity and multitasking: A diary study at work. *Human Performance*, 28(2), 112–136. <https://doi.org/10.1080/08959285.2014.976706>
- Koch, I., Gade, M., Schuch, S., & Philipp, A. M. (2010). The role of inhibition in task switching: A review. *Psychonomic Bulletin & Review*, 17(1), 1–14. <https://doi.org/10.3758/PBR.17.1.1>
- 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. <https://doi.org/10.1037/bul0000144>
- König, C. J., Buhner, M., & Murling, G. (2005). Working memory, fluid intelligence, and attention are predictors of multitasking performance, but polychronicity and extraversion are not. *Human Performance*, 18(3), 243–266. https://doi.org/10.1207/s15327043hup1803_3
- 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>
- Kooij, D. T., Kanfer, R., Betts, M., & Rudolph, C. W. (2018). Future time perspective: A systematic review and meta-analysis. *Journal of Applied Psychology*, 103(8), 867. <https://doi.org/10.1037/apl0000306>
- Korabik, K., Rhijn, T. V., 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>
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49(1), 1–49.
- Kristof-Brown, A., & Guay, R. P. (2011). Person–environment fit. In *APA Handbook of industrial and organizational psychology: Maintaining, expanding, and contracting the organization* (Vol. 3, pp. 3–50). American Psychological Association.
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals’ fit at work: A meta-analysis of person–job, person–organization, person–group, and person–supervisor fit. *Personnel Psychology*, 58(2), 281–342. <https://doi.org/10.1111/j.1744-6570.2005.00672.x>
- Kubicek, B., Paškvan, M., & Bunner, J. (2017). The bright and dark sides of job autonomy. In *Job demands in a changing world of work* (pp. 45–63). Springer.
- Lee, K., & Ashton, M. C. (2005). Psychopathy, machiavellianism, and narcissism in the five-factor model and the HEXACO model of personality structure. *Personality and Individual Differences*, 38(7), 1571–1582. <https://doi.org/10.1016/j.paid.2004.09.016>
- Lennard, A. C., Matta, F. K., Lin, S. H., Koopman, J., & Johnson, R. E. (2021). The Dynamism of Daily Justice: A Person–Environment Fit Perspective on the Situated Value of Justice. *Organization Science*, 33(4), 1523–1553. <https://doi.org/10.1287/orsc.2021.1496>
- Li, W. D., Li, S., Feng, J. J., Wang, M. O., Zhang, H., Frese, M., & Wu, C. H. (2021). Can becoming a leader change your personality? An investigation with two longitudinal studies from a role-based perspective. *Journal of Applied Psychology*, 106(6), 882. <https://doi.org/10.1037/apl0000808>
- 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>
- Lyngs, U., Lukoff, K., Slovak, P., Binns, R., Slack, A., Inzlicht, M., & Shadbolt, N. (2019). Self-Control in Cyberspace: Applying Dual Systems Theory to a Review of Digital Self-Control Tools. Proceedings

- of the 2019 CHI Conference on Human Factors in Computing Systems.
- Madjar, N., & Oldham, G. R. (2006). Task rotation and polychronicity: Effects on individuals' creativity. *Human Performance, 19*(2), 117–131. https://doi.org/10.1207/s15327043hup1902_2
- Magen, H. (2017). The relations between executive functions, media multitasking and polychronicity. *Computers in Human Behavior, 67*, 1–9. <https://doi.org/10.1016/j.chb.2016.10.011>
- Mathieu, J. E., & Chen, G. (2011). The etiology of the multilevel paradigm in management research. *Journal of Management, 37*(2), 610–641. <https://doi.org/10.1177/0149206310364663>
- McKay, A. S., & Gutworth, M. B. (2021). Temporal individual differences and creativity: An exploratory investigation. *Psychology of Aesthetics, Creativity, and the Arts, 15*(2), 295–312. <https://doi.org/10.1037/aca0000292>
- Meyer, J. P., Hecht, T. D., Gill, H., & Toplonysky, L. (2010). Person-organization (culture) fit and employee commitment under conditions of organizational change: A longitudinal study. *Journal of vocational behavior, 76*(3), 458–473.
- Miles, D., Borman, W., Spector, P., & Fox, S. (2002). Building an integrative model of extra role work behaviors: A comparison of counterproductive work behavior with organizational citizenship behavior. *International Journal of Selection and Assessment, 10*(1-2), 51–57. <https://doi.org/10.1111/1468-2389.00193>
- Mohammed, S., & Nadkarni, S. (2014). Are we all on the same temporal page? The moderating effects of temporal team cognition on the polychronicity diversity–team performance relationship. *Journal of Applied Psychology, 99*(3), 404. <https://doi.org/10.1037/a0035640>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G., & Prisma Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- Monsell, S. (2003). Task switching. *Trends in Cognitive Sciences, 7*(3), 134–140. [https://doi.org/10.1016/S1364-6613\(03\)00028-7](https://doi.org/10.1016/S1364-6613(03)00028-7)
- Morrison, E. W. (1994). Role definitions and organizational citizenship behavior: The importance of the employee's perspective. *Academy of Management Journal, 37*(6), 1543–1567. <https://doi.org/10.2307/256798>
- Muchinsky, P. M., & Monahan, C. J. (1987). What is person-environment congruence? Supplementary versus complementary models of fit. *Journal of vocational behavior, 31*(3), 268–277.
- Mumford, M. D., & McIntosh, T. (2017). Creative thinking processes: The past and the future. *The Journal of Creative Behavior, 51*(4), 317–322. <https://doi.org/10.1002/jobc.197>
- Murdock, K. W., Oddi, K. B., & Bridgett, D. J. (2013). Cognitive correlates of personality: Links between executive functioning and the big five personality traits. *Journal of Individual Differences, 34*(2), 97. <https://doi.org/10.1027/1614-0001/a000104>
- Nolan, K. P., & Harold, C. M. (2010). Fit with what? The influence of multiple self-concept images on organizational attraction. *Journal of Occupational and Organizational Psychology, 83*(3), 645–662. <https://doi.org/10.1348/096317909X465452>
- Oberlander, E. M. (2008). *Understanding and predicting multitasking performance using non-cognitive variables: Addressing issues in past research and developing a new measure of individual polychronicity*. Michigan State University. Department of Psychology.
- Palekar, A. A. (2011). *Polytasking and job stress across cultures*. San Jose State University.
- Parry, D. A., le Roux, D. B., & Bantjes, J. R. (2020). Testing the feasibility of a media multitasking self-regulation intervention for students: Behaviour change, attention, and self-perception. *Computers in Human Behavior, 104*, 106182. <https://doi.org/10.1016/j.chb.2019.106182>
- Pazos, P., Chung, J. M., & Micari, M. (2013). Instant messaging as a task-support tool in information technology organizations. *The Journal of Business Communication, 50*(1), 68–86. <https://doi.org/10.1177/0021943612465181>
- Piercy, C. W., & Underhill, G. R. (2020). Expectations of technology use during meetings: An experimental test of manager policy, device

- use, and task-acknowledgment. *Mobile Media & Communication*, 9(1), 78–102. <https://doi.org/10.1177/2050157920927049>
- 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>
- Puranik, H., Koopman, J., & Vough, H. C. (2020). Pardon the interruption: An integrative review and future research agenda for research on work interruptions. *Journal of Management*, 46(6), 806–842. <https://doi.org/10.1177/0149206319887428>
- Rice, R. W., Near, J. P., & Hunt, R. G. (1980). The job-satisfaction/life-satisfaction relationship: A review of empirical research. *Basic and Applied Social Psychology*, 1(1), 37–64. https://doi.org/10.1207/s15324834basp0101_4
- Rothstein, H. R., & Bushman, B. J. (2015). Methodological and reporting errors in meta-analytic reviews make other meta-analysts angry: A commentary on Ferguson (2015). *Perspectives on Psychological Science*, 10(5), 677–679. <https://doi.org/10.1177/1745691615592235>
- Rothstein, H. R., Sutton, A. J., & Borenstein, M. (2005). *Publication bias in meta-analysis: Prevention, assessment and adjustments*. Wiley.
- Scherbaum, C. A., & Ferreter, J. M. (2009). Estimating statistical power and required sample sizes for organizational research using multilevel modeling. *Organizational Research Methods*, 12(2), 347–367. <https://doi.org/10.1177/1094428107308906>
- Schneider, B. (1987). E= f(P,B): The road to a radical approach to person-environment fit. *Journal of Vocational Behavior*, 31(3), 353–361.
- Shamseer, L., Moher, D., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., & Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: Elaboration and explanation. *BMJ*, 349, 1–25. <https://doi.org/10.1136/bmj.g7647>
- Sheer, V. C., & Rice, R. E. (2017). Mobile instant messaging use and social capital: Direct and indirect associations with employee outcomes. *Information & Management*, 54(1), 90–102. <https://doi.org/10.1016/j.im.2016.04.001>
- 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](https://doi.org/10.1002/(SICI)1099-1379(199901)20:1<75::AID-JOB872>3.0.CO;2-F)
- Souitaris, V., & Maestro, B. M. (2010). Polychronicity in top management teams: The impact on strategic decision processes and performance of new technology ventures. *Strategic Management Journal*, 31(6), 652–678. <https://doi.org/10.1002/smj.831>
- Strobach, T., Salminen, T., Karbach, J., & Schubert, T. (2014). Practice-related optimization and transfer of executive functions: A general review and a specific realization of their mechanisms in dual tasks. *Psychological Research*, 78(6), 836–851. <https://doi.org/10.1007/s00426-014-0563-7>
- Strobach, T., Wendt, M., & Janczyk, M. (2018). Multitasking: Executive functioning in dual-task and task switching situations. *Frontiers in Psychology*, 9(108), 1–5. <https://doi.org/10.3389/fpsyg.2018.00108>
- Szameitat, A. J., & Hayati, M. (2019). Gender differences in polychronicity. *Frontiers in Psychology*, 10(597), 1–8. <https://doi.org/10.3389/fpsyg.2019.00597>
- Tak, J. (2011). Relationships between various person-environment fit types and employee withdrawal behavior: A longitudinal study. *Journal of Vocational Behavior*, 78(2), 315–320. <https://doi.org/10.1016/j.jvb.2010.11.006>
- Takeuchi, H., Taki, Y., Nouchi, R., Hashizume, H., Sekiguchi, A., Kotozaki, Y., & Kawashima, R. (2014). Effects of multitasking-training on gray matter structure and resting state neural mechanisms. *Human Brain Mapping*, 35(8), 3646–3660. <https://doi.org/10.1002/hbm.22427>
- Thornton, A., & Lee, P. (2000). Publication bias in meta-analysis: Its causes and consequences. *Journal of Clinical Epidemiology*, 53(2), 207–216. [https://doi.org/10.1016/S0895-4356\(99\)00161-4](https://doi.org/10.1016/S0895-4356(99)00161-4)
- Twyman, N. W., Proudfoot, J. G., Cameron, A. F., Case, E., Burgoon, J. K., & Twitchell, D. P. (2020). Too busy to be manipulated: How

- multitasking with technology improves deception detection in collaborative teamwork. *Journal of Management Information Systems*, 37(2), 377–395. <https://doi.org/10.1080/07421222.2020.1759938>
- Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal*, 41(1), 108–119. <https://doi.org/10.2307/256902>
- van Vianen, A. E. (2018). Person–environment fit: A review of its basic tenets. *Annual Review of Organizational Psychology and Organizational Behavior*, 5, 75–101. <https://doi.org/10.1146/annurev-orgpsych-032117-104702>
- Vogel, R. M., Rodell, J. B., & Lynch, J. W. (2016). Engaged and productive misfits: How job crafting and leisure activity mitigate the negative effects of value incongruence. *Academy of Management Journal*, 59(5), 1561–1584. <https://doi.org/10.5465/amj.2014.0850>
- Wajcman, J., & Rose, E. (2011). Constant connectivity: Rethinking interruptions at work. *Organization Studies*, 32(7), 941–961. <https://doi.org/10.1177/0170840611410829>
- Werner, J. M. (1994). Dimensions that make a difference: Examining the impact of in-role and extra-role behaviors on supervisory ratings. *Journal of Applied Psychology*, 79(1), 98. <https://doi.org/10.1037/0021-9010.79.1.98>
- Wiernik, B. M., & Dahlke, J. A. (2020). Obtaining unbiased results in meta-analysis: The importance of correcting for statistical artifacts. *Advances in Methods and Practices in Psychological Science*, 3(1), 94–123. <https://doi.org/10.1177/2515245919885611>
- Williams, M. S., Myers, A. K., Finuf, K. D., Patel, V. H., Marrast, L. M., Pekmezaris, R., & Martinez, J. (2022). Black physicians' experiences with anti-black racism in healthcare systems explored through an attraction-selection-attrition Lens. *Journal of Business and Psychology*, 1–14. <https://doi.org/10.1007/s10869-022-09825-z>
- Wood, J. A. (2008). Methodology for dealing with duplicate study effects in a meta-analysis. *Organizational Research Methods*, 11(1), 79–95. <https://doi.org/10.1177/1094428106296638>
- Wu, C. H., Wang, Y., Parker, S. K., & Griffin, M. A. (2020). Effects of chronic job insecurity on Big Five personality change. *Journal of Applied Psychology*, 105(11), 1308. <https://doi.org/10.1037/apl0000488>
- Yu, K. Y. T. (2009). Affective influences in person–environment fit theory: Exploring the role of affect as both cause and outcome of PE fit. *Journal of Applied Psychology*, 94(5), 1210. <https://doi.org/10.1037/a0016403>
- Zettler, I., Thielmann, I., Hilbig, B. E., & Moshagen, M. (2020). The nomological net of the HEXACO model of personality: A large-scale meta-analytic investigation. *Perspectives on Psychological Science*, 15(3), 723–760. <https://doi.org/10.1177/1745691619895036>
- Zhang, W., Jex, S. M., Peng, Y., & Wang, D. (2017). Exploring the effects of job autonomy on engagement and creativity: The moderating role of performance pressure and learning goal orientation. *Journal of Business and Psychology*, 32(3), 235–251. <https://doi.org/10.1007/s10869-016-9453-x>
- Zuckerman, M. (1971). Dimensions of sensation seeking. *Journal of Consulting and Clinical Psychology*, 36(1), 45. <https://doi.org/10.1037/h0030478>

Author biographies

Matt C. Howard is an associate professor in the Mitchell College of Business at the University of South Alabama. His research interests include statistics and methodology, health and well-being, personality and individual differences, as well as technology-enhanced training and development. He has published lead-author works in the *Journal of Applied Psychology*, *Organizational Research Methods*, *Journal of Business Research*, *Journal of Organizational Behavior*, *Applied Psychology*, *Information & Management*, and now *Organizational Psychology Review*. He

serves on the editorial boards of Human Resource Management, Human Resource Management Journal, and Journal of Business and Psychology. He was recently recognized as an Association for Psychological Science Rising Star 2022.

Joshua E. Cogswell is an assistant professor of Management at the Nicholls State University College of Business Administration. His research interests include workplace perceptions (and misperceptions) and how they affect individual, interpersonal and team processes, with specific focus on topics such as courage, ostracism, and leadership. He is also interested in methodological issues related to meta-analysis, method variance, and open science practices.

Appendix A – Measures of Polychronicity

Polychronic Attitudes Inventory (Kaufman et al., 1991)

1. I do not like to juggle several activities at the same time.
2. People should not try to do many things at once.
3. When I sit down at my desk, I work on one project at a time.
4. I am comfortable doing several things at the same time.

Inventory of Polychronic Values (Bluedorn et al., 1999)

1. We/I like to juggle several activities at the same time
2. We/I would rather complete an entire project every day than complete parts of several projects (R)
3. We/I believe that people should try to do many things at once

4. When we/I work by ourselves/myself, we/I usually work on one project at a time (R)
5. We/I prefer to do one thing at a time (R)
6. We/I believe people do their best work when they have many tasks to complete
7. We/I believe it is best to complete one task before beginning another (R)
8. We/I believe that it is best for people to be given several tasks and assignments to perform
9. We/I seldom like to work on more than a single task or assignment at the same time (R)
10. We/I would rather complete parts of several projects every day than complete an entire project

Polychronic–Monochronic Tendency Scale (Lindquist & Kaufman-Scarborough, 2007)

1. I prefer to do two or more activities at the same time.
2. I typically do two or more activities at the same time.
3. Doing two or more activities at the same time is the most efficient way to use my time.
4. I am comfortable doing more than one activity at the same time.
5. I like to juggle two or more activities at the same time.

Multitasking Preference Inventory (Poposki & Oswald, 2010)

1. I prefer to work on several projects in a day, rather than completing one project and then switching to another.
2. I would like to work in a job where I was constantly shifting from one task to another, like a receptionist or an air traffic controller.
3. I lose interest in what I am doing if I have to focus on the same task for

- long periods of time, without thinking about or doing something else.
4. When doing a number of assignments, I like to switch back and forth between them rather than do one at a time.
 5. I like to finish one task completely before focusing on anything else. (R)
 6. It makes me uncomfortable when I am not able to finish one task completely before focusing on another task. (R)
 7. I am much more engaged in what I am doing if I am able to switch between several different tasks.
 8. I do not like having to shift my attention between multiple tasks. (R)
 9. I would rather switch back and forth between several projects than concentrate my efforts on just one.
 10. I would prefer to work in an environment where I can finish one task before starting the next. (R)
 11. I don't like when I have to stop in the middle of a task to work on something else. (R)
 12. When I have a task to complete, I like to break it up by switching to other tasks intermittently.
 13. I have a "one-track" mind. (R)
 14. I prefer not to be interrupted when working on a task. (R)

Appendix B – Data Transparency Statement

The current meta-analytic database can be found in Supplemental Material B.