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Using To-Do Lists to Infer Knowledge Workers' Temporal Perceptions

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Using To-Do Lists to Infer Knowledge Workers' Temporal Perceptions

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Abstract

Using To-Do Lists to Infer Knowledge Workers' Temporal Perceptions

by

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In today's productivity-driven work culture, many knowledge workers use to-do lists to stay organized. In this study, workers from both the United States and Norway were interviewed about their to-do lists. The interviewees' to-do lists communicate the various cycles to which they are entrained (non-work activities, colleagues' schedules), as well as their respective views about the enactments and construals of time. These interviews also reveal how to-do lists serve as memory aids to knowledge workers. Additionally, to-do lists themselves appear to be living documents, changing and evolving as tasks are regularly completed and added. This study also provides suggestions for further research on these enormously popular organizational tools.

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CHAPTER ONE: INTRODUCTION

For many people today, it seems as though their work never ends. Not only do workers have to contend with increased productivity demands, but the information and task overload – created by a 24 hour a day global marketplace and exacerbated by seemingly ubiquitous, always connected Internet devices such as laptops, tablets, and smartphones – means many workers must contend with more demanding workloads than ever before (Gonzalez & Mark, 2004). This overload forces workers to balance several tasks simultaneously (Holmström & Milgrom, 1991), making it increasingly difficult for workers to keep track of the demands of daily life.

To-do lists are a popular way for people to keep track of what they need to accomplish in various aspects of their lives, particularly in their professional lives as members of an organization. They come in various forms, ranging from simple lists written with pen and paper, to complex computer-based appointment management software that allows hundreds or thousands of an organization's members to interact and coordinate their daily activities. In all cases, to-do lists help the knowledge workers that use them to either remember what must be done in the future, or remember what has been done in the past.

In their study of productivity tools like to-do lists, Leshed and Sengers (2011) report that today's workers have "internalized the cultural norm of busyness, seeing being busy an important part of their identities and establishing this in the ways they use their productivity tools" (p. 905). Consequently, managers expect all employees to be as 'busy' as they can be and require workers to accomplish several tasks in quick succession. Thus, to-do lists become tools for knowledge workers embedded within

organizations to maintain a personal level of organization that enables them to achieve the productivity levels demanded by the modern workplace, as well as the demands placed on them in their personal lives.

To-do lists have become so commonplace that they are often referenced in commercials, movies, television shows, and even songs. Ace Hardware's newest slogan directly refers to these organizational lists before and after the tasks on it are completed: "Turn your to-do list into a to-done list" (Ace Hardware, n.d.). The popular 2007 movie 'The Bucket List' follows two terminally ill men who try to complete all the tasks on their list of things to do before they die (Warner Bros. Studios, Zadan/Meron, & Reiner, 2007). The Food Network's 'Restaurant Impossible' includes a segment where the show's host, Robert Irvine, writes a to-do list on a display board to track a team's progress as they overhaul a failing restaurant (Summers, 2011). Songs like Toby Keith's 'My List' even discuss how there is always more to get done, including spending time with family (James & Bishop, 2001).

This ubiquity is a testament to how simple to-do lists are to use, the relative ease of their implementation, and the seeming necessity for their existence created by the modern, hectic work environments and personal lifestyles of people in the 21st century. While to-do lists are a wonderful tool for enabling the lister to effectively organize their daily activities, what can to-do lists tell us about their creators, specifically their coordination with other workers' routines, their understanding and conceptualization of time, and how they express this understanding of time in their daily lives?

In this exploratory study, to-do lists are investigated as communicative devices employed by knowledge workers within organizational settings. Specifically, the goal of this thesis project is to examine how to-do lists illustrate the various personal and

professional cycles that shape organizational members' experience of time, and how to-do lists communicate various enactments and construals of time.

This work will first attempt to establish the boundaries of this study by defining knowledge workers and to-do lists. Then, it will highlight how knowledge workers' to-do lists can provide insights into entrainment cycles, and how knowledge workers experience the enactments and construals of time. This information is obtained during interviews with knowledge workers from both the United States and Norway regarding their use of to-do lists. Interviews and examinations of actual to-do lists provided by the interviewees show these workers experience entrainment to non-work activities and colleagues' schedules, as well as how these workers experience both enactments and construals of time. Data also reveal which tasks knowledge workers deem important enough to include on their to-do lists, allowing insight as to why people use to-do lists. In addition, data support the idea that knowledge workers use to-do lists as memory aids, as well as the notion that to-do lists themselves are living documents. Finally, directions for future work are discussed.

CHAPTER TWO: LITERATURE REVIEW

Before we can study in-depth what knowledge workers' to-do lists can reveal about their conceptualization of and interaction with time, a foundation of theoretical work must be laid. First, it is important to define knowledge workers and to-do lists. It is also important to define the concept of entrainment, how various temporal cycles interact with one another, as well as how people both enact and construe time.

Defining Knowledge Workers

Knowledge workers are not only influenced by the information they process, but use their knowledge to generate new information that influences their respective organizations (Kidd, 1994). Because the most important asset these workers possess is their understanding of complex information—including “theoretical knowledge, analytical tools and tacit or judgmental skills”—they are not tied to any one particular organization (May, Korczynski, & Frenkel, 2002, p. 779). It is typical for knowledge workers to lack loyalty to their employer but show greater dedication to their profession (May et al., 2002). Unlike many other types of workers, who can perform their jobs with inputs that contain little complex information or produce outputs that are simple to understand without extensive advanced understanding, knowledge workers are “workers with high information content in their work inputs and outputs” (Davis et al., 1993 as seen in Straub & Karahanna, 1998).

Knowledge workers are an ideal population for this study because they tend to have extremely varied tasks, potentially making their lists more dynamic. Knowledge workers must deal with dynamic information from multiple, simultaneous projects, typically using a large variety of digital and traditional media in order to accomplish

these tasks (Gonzalez & Mark, 2004). While other types of workers may also use to-do lists, knowledge workers consistently work on a very broad set of projects that leads to a wide-ranging set of different tasks on their to-do lists.

Defining To-Do Lists

Currently, academic literature has yet to clearly define what comprises a to-do list. This can be attributed to many factors such as the numerous tools for establishing and maintaining lists, the varying ways people organize their lists, and the various approaches about how to create ‘efficient’ and ‘effective’ to-do lists (for examples of different to-do list approaches, see MindTools, n.d.; Connor, 2009).

However, it is generally accepted that to-do lists are lists of tasks to accomplish and may take on any form the list-maker wishes (Cellaz, n.d.; Kristi, 2010). In fact, prior research has shown that to-do lists can specify tasks that range from abstract to very specific (Bellotti, Dalal, Good, Flynn, Bobrow, & Ducheneaut, 2004). For example, a very abstract item on a to-do list may be to ‘respond to emails’ or ‘learn about computer coding.’ On the other hand, very specific items may be listed as ‘respond to John’s email about Tuesday’s business luncheon plan’ or ‘learn how to write a loop in FORTRAN.’

Although to-do lists have not been specifically defined, Cooper and Burrell (1998, p. 93) said a list “tells us how to act in regard to a particular goal.” In this case, to-do lists tell us what needs to be accomplished to achieve a goal, whether that ultimate goal is to complete a project or something more general such as surviving the day. It is important to note that not all to-dos actually get accomplished (Bellotti et al., 2004); thus, it cannot be assumed that individuals’ to-do lists are ever fully completed.

Research on to-do lists has found evidence demonstrating that to-do list makers typically do not provide extraneous details (Bellotti et al., 2004). However, the same

research team found a to-do list “detailed enough to support preparation of some [presentation] slides” (p. 736). Also, only 14% of this study’s participants listed to-do reminders; most were in other formats such as e-mail, online calendars, online folders, or notebooks/planners (Bellotti et al., 2004).

To-do lists can take many forms. Most to-do lists are generated in a linear fashion, with one task on each line of the list. Some to-do lists, however, take on non-linear forms. For example, a collection of sticky notes placed on a white board, around a computer monitor, or on the top of one’s desk may constitute a to-do list. While it is not written on a single piece of paper or stored in a single location on a computer hard drive, it is still a collection of tasks that the list maker intends to accomplish. A list could also be written non-linearly on a single piece of paper. For example, tasks could be jotted in random locations on a page, perhaps in the margins or scattered randomly throughout.

Now that a baseline understanding of both the concept of knowledge workers and to-do lists has been provided in order to define the boundaries of this study, a brief introduction to the concepts of entrainment, as well as the enactments and construals of time, is necessary in order to understand how these concepts are illustrated by knowledge workers’ to-do lists. These definitions will specifically be used to extrapolate how knowledge workers experience time in the workplace.

Entrainment

Cyclic, repetitive activities are part of many knowledge workers’ daily activities, and are therefore reflected in their to-do lists. Consequently, we must have an understanding of how these cycles interact with one another in order to fully appreciate a knowledge worker’s experience of time in the workplace and how that experience manifests itself in their to-do lists.

“Entrainment is the phenomenon in which one cyclic process becomes captured by, and set to oscillate in rhythm with, another process,” according to McGrath and Kelly (as cited in Bluedorn & Denhardt, 1988, p. 313). Bluedorn (2002) further states that these cycles are both consistently and repetitively related. Additionally, the entrainment process “integrates temporally differentiated activities and behaviors” (Bluedorn & Denhardt, 1988). One of the most common examples provided to illustrate this concept stems from biology research. The 24-hour day exemplifies entrainment, due to the day’s regular cycling between light and darkness (Bluedorn & Denhardt, 1988). As humans, our behavior reflects this cycle: biologically we are driven to sleep when it is dark outside and wake when it is light outside.

Standifer and Bluedorn (2006), elaborating on Ancona and Chong (1996), Aschoff (1979), and Bluedorn (2002), state that there are three types of relationships between entrained cycles: (1) synchronic; (2) leading; (3) lagging. In synchronic entrainment, the cycles occur simultaneously. In leading entrainment, “the ‘captured’ or entrained cycles occur *before* the cycle of the more dominant rhythm” (p. 910). In lagging entrainment, “the entrained cycles occur *after* the cycle of the more dominant rhythm” (p. 910). This is critical to our understanding of to-do lists because knowledge workers do not work in insular environments, but rather must navigate many different temporal cycles. The navigation and awareness of these various cycles is reflected in, and must be understood in order to properly interpret, knowledge workers’ to-do lists.

While an understanding of the various cycles of time experienced by knowledge workers is important for understanding the structure and makeup of their to-do lists, there are many other aspects of time that are also reflected in their to-do lists, specifically knowledge workers’ enactments and construals of time.

Enactments of Time

Temporal enactments are the way in which workers execute time (Ballard & Seibold, 2003). Each enactment describes how a worker uses time in the workplace. How flexible or rigid are workers' schedules? How quickly do workers complete their tasks? Do workers focus solely on a single task at a time, or do they tend to work on multiple tasks at once? How scheduled are workers' daily activities? How punctual are workers expected to be in their organization with regard to deadlines, appointments, or meetings? These questions highlight the various enactments of time experienced by today's workers.

FLEXIBILITY

Flexibility refers to how concrete the timing and ordering of tasks is in a plan (Ballard & Seibold, 2000; Ballard & Seibold, 2003). A high degree of flexibility enables workers to "rearrange or reschedule tasks, appointments, and meetings as needed" (Ballard & Seibold, 2003, p. 386). A low degree of flexibility reflects that organizational members are less able to change or rearrange their workplace activities, creating difficulties when attempting to accommodate changes.

An example of a job where workers have a low degree of flexibility is manufacturing on an assembly line, where workers' tasks are fixed in order and workers cannot deviate from that order. On the other hand, an example of a job with high flexibility is a remote salesperson, where activities can be rearranged as necessary depending on meetings with existing or potential clients. This salesperson can choose to meet with people at times that are more convenient for him or her, as well as change those meeting times should a more urgent task need to be completed.

PACE

Pace refers to “the tempo or rate of activity” (Ballard & Seibold, 2003, p. 386), and is a critical component of time allocation, scheduling, and deadlines (Schriber & Gutek, 1987). Faster paced environments allow for more tasks to be completed within a particular time frame, while slower paced environments require longer time intervals in which to complete the same tasks.

An example of a fast-paced environment would be a diner at lunchtime, where customers are coming in, ordering, eating, and leaving in quick succession. In this type of environment, a waiter or cook will have to service ten, twenty, or even more orders in a single hour. Conversely, an environment that would be considered slow-paced could be a library, where the librarian can take his or her time in restocking books as they are returned.

It is important to note that pace can change on a minute-by-minute, hourly, daily, or even weekly basis. Pace is therefore on a continuum that ranges from barely moving to moving so quickly that one can barely keep up.

LINEARITY

A linear pattern of time is illustrated when tasks are carried out one at a time, one right after the other (Ballard & Seibold, 2003). For example, a librarian can only process a single book at a time. Each book must be successfully checked out before beginning the process of checking out the next book, with no capability of processing two books simultaneously, which would instead be considered multitasking.

Multitasking refers to a nonlinear pattern of time in which tasks are carried out simultaneously (Ballard & Seibold, 2003). As an example, consider customer service representatives who routinely answer customer questions using both phone and email, while simultaneously confirming information with their colleagues via instant messenger.

SCHEDULING

According to McGrath and Kelly (1986), the objective of scheduling is “to determine when some event will occur or some product will be available in relation to an external calendar or clock” (p. 109). Thus, scheduling provides the expected sequence of events, as well as the expected duration of each event (Lauer, 1981).

Although an organization’s members can have their entire day scheduled in such a way where there is no flexibility, they can conversely have to-do lists “with no specific boundaries regarding either when something must occur or how much time is allocated to complete it” (Ballard & Seibold, 2003, p. 388).

PRECISION

This enactment of time is in regards to exact timing or lack thereof (Ballard & Seibold, 2003). Punctuality is often used when describing temporal precision.

An example of high precision would be standardized testing, such as college entrance exams. The exam begins at an established, pre-determined time with no variation, meaning test-takers must be punctual that morning. Another example is catching a flight. Provided there have been no delays in an airline’s schedule or any other issues, one can expect his or her flight to leave extremely close to the departure time listed on the boarding pass, and therefore must be waiting at the gate to board in advance of that departure time.

Alternatively, parties can be said to demonstrate low precision. Many party invitations will provide a particular start time, but it is not expected that guests arrive exactly at that time. Likewise, bedtimes are usually an example of low precision; one typically does not have to be in bed by a precise time. Rather, bedtimes are viewed as ranges. For example, if an adult says he would like to go to sleep at 11:00 p.m., he may

go to bed at 10:00 p.m. or 1:00 a.m. Usually it is not critical for him to go to bed at *exactly* 11:00 pm.

Construals of Time

While temporal enactments of time describe the way in which people execute time, the construals of time describe the ways in which workers perceive and align themselves to time (Ballard & Seibold, 2003). Do workers perceive they always have more time, or is their time limited? How does this influence the ways in which they work? Do workers feel certain tasks must be completed immediately and without delay, or is it okay for them to delay work on specific tasks until a later time or date? Answering these questions allows researchers to gain insights into how today's knowledge workers interpret time.

SCARCITY

This term reflects “the belief that time is a limited and exhaustible resource” (Ballard & Seibold, 2003, p. 390). Thus once time has passed, it is gone forever and cannot be recovered. People can often be heard saying phrases such as “I want to make the most of my time,” which recognizes that time is limited and valuable.

URGENCY

This is typically seen as deadlines approach, when people become especially focused on the impending deadline. Urgency is related to the task, while scarcity is based on the time remaining to complete the task (Ballard & Seibold, 2003). For example, an employee might need to prepare a presentation in the next half hour. The task (completing the presentation) is urgent, while the time remaining to complete the task (the next 30 minutes) reflects scarcity.

To-Do Lists As Memory Aids

As Confucius once said, “The weakest ink is stronger than the best memory.” In other words, one’s memory is not as reliable as recorded information. Many people have come to agree with Confucius and use to-do lists to aid their memories.

According to an organization dedicated to helping others improve their memory (ImproveMemory, n.d.), to-do lists can be quite helpful:

To-do lists are the most extensive memory aid. They help organize and retain information. The act of ‘listing’ is really the actual aid in ‘remembering.’ Lists are there to tell yourself that you still have something to do.

This highlights how the act of writing a to-do list extends the list-maker’s memory and aids in recall.

While not all people are truly forgetful, some have health issues that make remembering things more challenging. Some of these issues can include a vitamin B12 deficiency, tumors or infections in the brain, and even some “thyroid, kidney, or liver disorders” (National Institute of Aging, n.d.). A member of my family has an extreme vitamin B12 deficiency. Because of this, he is extremely forgetful at a very young age, sometimes forgetting even routine tasks. He was advised by his doctor to compensate for his health issue by writing to-do lists. The National Institute of Aging (National Institute of Aging, n.d.) advises forgetful people to use several techniques to help them remember, including to-do lists: “Plan tasks, make ‘to do’ lists, and use memory aids like notes and calendars.” The Mayo Clinic (2011) also suggests using to-do lists to improve one’s memory. In the context of their third tip for improving memory—Get Organized—they suggest “keep[ing] to-do lists current, and check[ing] off items you’ve completed.” This

shows that to-do lists are widely accepted as memory aids by numerous healthcare professionals.

However, it should be noted that to-do listers do not necessarily have memory problems—they may simply find it convenient to keep lists to help them remember tasks they need to complete. Additionally, the fact that a to-do lister does not have these medical problems does not prevent him or her from experiencing some of the same benefits discussed by medical professionals. Specifically, it still serves as a memory aid because an overwhelming majority of people do not have perfect memory (ABC News, 2006; Marcus, 2009). If one had a perfect memory, would one need a to-do list?

Research Questions

With this baseline knowledge established, this study attempts to address several questions. A worker's to-do list contains information on what that person does and with whom that person interacts over the course of a workday. By looking at their to-do lists, can it be discovered which personal and professional cycles shape organizational members' experience of time and how these cycles are entrained to one another? Additionally, which enactments of time are most commonly addressed in to-do lists? Also, which construals of time are most commonly addressed in to-do lists?

In order to answer these questions, interviews were conducted with workers in the United States and Norway as detailed below.

CHAPTER THREE: METHOD

Participants

Participants for this study worked 40 or more hours per week and used to-do lists. Eight of the interviews were conducted in the United States, while seven of the interviews were conducted in Norway. Four were males and four were females from urban areas in the U.S.; one was male and six were females from urban areas in Norway. Ages in both countries ranged from the late twenties through late fifties. This sample represented knowledge workers from the following industries: Government, military, non-profits, business, finance, technology, retail, education and academia.

A colleague collected the Norwegian interviews while on fellowship at the Bodo Graduate School of Business following the same procedures. Her efforts are greatly appreciated.

Procedures

INTERVIEW GUIDE

A pilot study had been previously performed that tested the interview guide to ensure question clarity. Lessons learned from this pilot study were incorporated into the revised interview guide used for the current research.

Because only people with to-do lists were interviewed, it was suggested by Dr. Larry Browning that the interviews be structured as to-do lists. Consequentially, whenever possible, interview participants were emailed the interview guide the night prior to the scheduled interview, so they could preview the questions. While not indicated by all participants, some mentioned that they had read the interview questions prior to the scheduled interview, while others mentioned they had not. However, having or having

not read the interview questions produced no discernable differences in participant responses.

Participants were asked a series of seventeen questions, including six questions with multiple parts. These multiple-part questions were organized into the following specific categories: (1) Background/overview; (2) Challenges to your to-do list; (3) Strategies for your to-do list; and (4) Miscellaneous issues with your to-do list. These categories were included in the script sent to participants the night before their respective interviews were to take place with the intent of providing flow and organization to the interview for the participants.

DATA COLLECTION

Face-to-face, telephone, and Skype™ interviews were conducted for data collection. Participants were contacted via snowball sampling (Schutt, 2009), which Biernacki and Waldorf (1981) define as a “method [that] yields a study sample through referrals made among people who share or know of others who possess some characteristics that are of research interest” (p. 141). Thus, each interview concluded with the question, “Whom else should I speak to?”

All participants were asked to provide to-do list samples that covered the past month; lists that were still available to the participants were collected as supporting data for the interviews if the interviewee was comfortable releasing the originals or copies to the interviewer. Leshed and Sengers (2011) also used this method in their study about the culture of busyness and the productivity tools that support it.

In all cases, interviews were conducted at a time that was convenient for the interviewees. If conducted in person, all efforts were made to meet at a place convenient

for the participants. Most interviews lasted under an hour, but one lasted almost two hours.

DATA ANALYSIS

All interviews were audio-recorded and later fully transcribed. However, during each interview, copious notes were taken using a notebook and pen to ensure that all data was collected in case of technical difficulties with the audio recording. Audio was edited for interruptions, which occurred for several reasons including offices shared between interviewees and other colleagues, which led to occasional interruptions by said colleagues. Additionally, some information from interviews was deleted from the audio prior to transcription at the request of the interviewees. For example, one interviewee's to-do list included tasks that dealt with an important career decision, and although this person discussed it during the interview, this person requested that it be deleted from the data to protect this person's job. Although confidentiality and anonymity rules under the IRB already protected this person, this person felt more reassured knowing the data would not be transcribed or considered in analysis. In other cases, personal anecdotes about the interviewees' families were deleted at interviewees' requests—typically because they were out of context and interviewees wanted to remain as anonymous as possible.

All interviewees have been assigned pseudonyms that will be used from this point forward. Additionally, it should be noted that these assigned pseudonyms may or may not reflect the participants' gender, nationality, or ethnicity as an extra effort to protect their identities.

Prior to coding, theoretical memos were created based on both the notes taken during the interview and the finalized transcripts (Glaser, 1998). Transcripts were

analyzed using open coding, which compares “events/actions/interactions...with others for similarities and differences” (Strauss & Corbin, 1990, p. 12). Conceptual labels are then assigned based on these comparisons and “grouped together to form categories and subcategories” (Strauss & Corbin, 1990, p. 12). Open coding was used to generate codes from the transcribed interviews. Several iterations of coding were performed during this study.

CHAPTER FOUR: FINDINGS

Overarching Themes

Several themes were apparent from the interviews and collected to-do lists. First, task importance is a common theme found throughout the interviews as people describe needing and relying on their lists. Entrainment is another common theme, as many of these knowledge workers described having to coordinate various temporal cycles in their daily activities. Various enactments and construals of time were demonstrated throughout the data. Pace, flexibility, linearity, scheduling, and precision are apparent in these knowledge workers' to-do lists, and provide insight into how these knowledge workers use their time. Scarcity and urgency are regular themes in these lists, and show how these to-do listers construe time in their daily activities. These construals of time highlight reasons why people use to-do lists at all.

Task Importance

Previous work claims, “the mere assignment of a task signals its importance given the expenditure of the valuable and finite resource (read time) it will require” (Ballard & Seibold, 2003, p.382). Many interviewees made statements supporting this claim in various ways.

Interviewees often stated that only important tasks or tasks they could not remember or tasks that were urgent made it onto their to-do lists, signaling that each task on their list carried some importance to them. As she discussed why she chose to-do lists over other organization tools available to her, Monica stated simply that lists help her think because she can more easily “figure out what projects are the most important.” This indicated that the items on her lists had to be accomplished and the only thing in

question was a particular task's urgency—the task's importance was automatically determined when she wrote it on her list.

Monica made a very representative comment showing why to-do listers use lists: “It's just impossible to keep all that information in your head.” In other words, if it needs to be done, she had to write it down because forgetting it would have negative consequences. By writing it down, Monica was indicating to herself that the particular task was important, although why each task was important and the level of importance for that task may have varied.

For some, visually highlighting tasks sorts these already important tasks into categories that are prioritized as necessary. The most commonly used highlighting tool interviewees discussed was color-coding. Avery's color-coding strategy was particularly representative of what others claimed to do:

I keep my [professional] stuff that doesn't always affect me...in one color. My personal work items stay in a dark blue. And then, my personal, outside-of-work things are in green.

Thus, not only were tasks on Avery's to-do list important, but some tasks required his attention before others. By visually separating his work and non-work items, he was able to focus on each category at the appropriate time in his day. While at work, his work items were more important than his personal items, so they received all of his attention. After work, the tasks listed in green received his attention. Matthew similarly color-coded his work and non-work activities and divided his time accordingly. In both cases, all tasks were important enough to make the list prior to being color-coded; the color-coding simply created a visual categorization of listed tasks.

Robin also color codes, but in a slightly different way. While she has a to-do list that is generally all one color, each task listed corresponds to a color on something else,

such as important emails that arrive in her inbox. For her, these emails are a more detailed version of her to-do list, which may only say to answer all emails. As one project gets underway, Robin will receive several emails from various people about that project. Then she will pick a color that is not currently being used to mark another project, and she will use that color to highlight emails. If she chooses yellow for a particular project and also receives hardcopy documents, she will put them in a yellow folder on her desk. If the color yellow is used for items pertaining to a renovation project, for example, then when she gets to the line item on her to-do list that says ‘complete work on renovation project,’ she will gather any documents in the yellow folder on her desk and use her computer to bring up only those emails she’s marked in yellow. Then she will work on the project. For Robin, the color-coding process she uses tells her that the most important documents and emails she receives are associated with a color. When she lists the overall task on her to-do list, she is communicating to herself that it is important enough to address the renovation project; when she color codes the tasks, she is telling herself not to lose something because it is associated with a project that is very important.

It is important to note no one mentioned reasoning for their color choices. Only one person commented that it was random and only based on what other colors were currently not in use.

Entrainment

Entrainment refers to the coordination of two temporal cycles, such as structuring one’s productive time (the first cycle) to coincide with the 8-hour workday (the second cycle) (Bluedorn & Denhardt, 1988). For those desiring synchronous entrainment, these two cycles will ideally coincide such that the employee is most productive while ‘on the

clock.’ Each interviewee demonstrated that they were entrained to non-work activities and colleagues’ schedules.

NON-WORK ACTIVITIES

This theme manifested itself both directly and indirectly. In some cases, to-do listers commented they were determined their work obligations would not interfere with their non-work activities. In other cases, it was indirectly brought up when an interviewee said something to the effect that they had recurring personal priorities that were also important to them, demonstrating that they are entrained to spending at least a part of their day away from work, immersed in their personal lives. While these personal priorities themselves may vary, they still regularly reoccurred, requiring that at least part of a to-do lister’s day does not revolve around their employer’s goals and expectations. This implies that everyday these knowledge workers had to address personal and professional schedules.

Ruben was one such person determined to have a personal life: “Are there items on [my] list that are pure routines? ... Yes. Usually that is my personal things... I got thing[s] that I’ve got to do for myself.” Ruben regularly performs non-work activities in the evening after leaving the office, therefore his non-work cycle shows lagging entrainment to his work cycle.

Monica’s lists particularly showed how both recurring work and non-work activities were both daily cycles in her life. Each workday, her list included non-work activities, such as feeding the cat or doing another specific daily chore. Although these activities were outnumbered in quantity by her work activities, they were still important enough to make her to-do list.

The relationship between non-work activities and work/occupational activities demonstrates lagging entrainment, where the non-work activities occurred after the more dominant activity of the workday. Many of the to-do listers interviewed discuss doing personal tasks that could be performed at any time of the day, such as grocery shopping or laundry, after they have completed or mostly completed their work-related tasks, even though it might be possible to interleave these work and non-work tasks throughout the day.

COLLEAGUES' SCHEDULES

As Leshed and Sengers (2011) find in their study regarding busyness and use of productivity tools “participants express commitment to activities that involve others” (p. 909). The same theme was also found in this data and evidenced possible entrainment patterns. The dominant cycle was the colleague’s schedule, while the non-dominant cycle was each individual’s own schedule. Thus, one’s workday is entrained to the schedule of colleagues/coworkers when dependency is necessary either because help is needed or the people involved work in a specific team or group as defined by supervisors or managers in their workplace’s hierarchy.

Entrainment to colleagues’ schedules was most evident when employers put shared calendar systems in place. Matthew mentioned that before he would book a meeting, he would consult the online calendar-sharing system and book a meeting for the time that the most people would be able to make it:

...we do calendar sharing between everyone, so I have a full view over my colleagues’ meetings, etc. So if I want to book a meeting, I go into the calendar and set up a meeting in the meeting room, and I tell my people the times that suit most people.

Additionally, Matthew allowed his colleagues to access his work calendar so they could also consult his schedule when necessary. Because he needed to confer with coworkers on a daily basis and his workplace exhibited a very interdependent culture, Matthew's schedule was very much entrained to that of his coworkers, making their schedules the dominant rhythm. Matthew's experience was typical of those described by the other interviewees.

Robin's department also employed a calendar-sharing system so that each person in the department knew when the other would be out. Only a few people work in Robin's department, and it is the type of job where someone must be present at all times to handle any emergencies that may arise. Therefore, the employees in her department would list the times at which they had any meetings, appointments, or needed to leave early so the other employees could ensure adequate coverage was maintained. On one day she noticed her colleague, Devon, was going to leave at 2 p.m. for a personal reason. While Robin typically left at that time, she knew she would have to stay until 5 p.m., when the next shift would arrive and handle all problems. While such events did not recur on a daily basis, they recurred in some way or another every week, meaning Robin had to adjust her schedule to that of her colleagues each week to ensure proper personnel coverage.

For Monica, being entrained to colleagues' schedules means being entrained to their most productive times of the day so that they both can be as efficient as possible with their scarce time:

[The art director] doesn't like me to come in late in the day and bring him stuff. He gets tired after like 3:00 p.m. His brain doesn't work, which I understand very well. Things like that might take me 10-20 minutes but they're better done first

thing in the morning... I will do anything that requires me to either delegate work to somebody else or confer or collaborate with someone else [next].

For Monica, her colleagues' schedules were the dominant cycles in her day. The art director's most creative times were first thing in the morning, which prompted her to change her schedule so that she could get the most creativity from him. Whenever she had to involve anyone else in her work, she did that as soon as possible out of consideration for his or her time. Thus, Monica's day was dominated by the cycles her colleagues experienced.

Enactments of Time

Not only do these knowledge workers' to-do lists show how they are entrained to various overarching cycles, they also show how these knowledge workers enact time through the various tasks that make up those cycles. The specific temporal enactments most commonly expressed in interviewees' to-do lists are the dimensions of pace, flexibility, linearity, scheduling, and precision (punctuality and delay).

PACE

The pace of an environment or worker can have a profound effect on the number of tasks that can be completed in a given time interval. Workers in faster paced environments can accomplish far more tasks in any particular time frame than can workers in slower paced environments.

Hannah was a prime example of a worker in a fast-paced environment. As a spokesperson for a major organization, she understood the pace at which she was required to work: "So of course I know that they really want everything fast. Of course tomorrow it is old news." Thus, the nature of her job required that she work at a fast pace to keep information updated.

While Hannah experienced the need to consistently work at a fast pace, others did not have jobs requiring a consistent pace. Monica is one such worker. Her pace varied and depended on the immediacy of a deadline:

Having that to-do list and having or knowing ‘okay, I’ve got four more hours left in the day and I really need to get this paper done by the end of the day tomorrow because I’ve got to send it to [a supervisor]...’ I know that it’s going to take me another two hours to at least get this big piece written. I need to get focused on it. It just helps. It helps me to have an anchor...”

Monica would work at a comfortable pace until a task’s deadline was so near that she would have to increase her pace to complete the task by the deadline. In this example, she knew she had only a day and a half to complete a report, and although it would only take two hours to write, she had to leave time for editing and fact-checking and other things that may come up. Ultimately, this meant increasing her pace for a relatively short duration of time to meet the assigned deadline, known as deadline pacing (Gevers, Rutte, & van Eerde, 2006). Deadlines act as task-level situational cues that initiate the expression of this pacing style. A person that uses this pacing style does the majority of the work shortly before the deadline (Gevers et al., 2006).

While Hannah described the pace she experienced at work as consistently fast-paced, and Monica described her pace as being deadline-driven, Leah described her pace as being driven by the length of her list:

I think the good thing is to have a sort of not too long or not too short to-do list. It is more effective when you feel a little bit stressed and you really feel the need to be effective to get everything done. If it is too long, it is negative stress. If it is too short, I often react by being too lazy.

Leah simply looked at the length of her to-do list to determine how quickly she would have to work. A short list meant a slower-paced day, whereas a long list meant she better work at a fast pace in order to complete the list by the end of her workday.

FLEXIBILITY

Flexibility describes the amount of rigidity present in the ordering and timing of one's tasks (Ballard & Seibold, 2000; Ballard & Seibold, 2003), where low flexibility means that tasks must be done at a specific time and in a specific order, and high flexibility means that tasks can be performed whenever possible and in any order.

Heidi provided a statement that exemplifies a higher degree of flexibility: "Other than that, I make myself a schedule for a day, but I'm changing my events throughout the day... I am in the military so things happen and the scheduling that I made up might change." The consistent shifting of when particular tasks would be completed shows the flexibility inherent in her job. By understanding that the scheduling she created for herself using her to-do list could change, she indicated that it was normal in her particular workplace for things to come up and she was expected to build this flexibility in her to-do list to accommodate unplanned events.

Interviewees also expressed how even their breaks were flexible. In some cases, laws determined how often and how long a worker was expected to take a break, but in most cases, workers' breaks were not scheduled so rigidly. For example, referring to the time she arrived at work and the time she left the office, Robin stated,

What happens between those two time periods is anybody's guess. I don't take lunch at noon everyday, you know, that kind of thing. Maybe I do eat lunch, maybe I don't eat lunch. It just depends upon what the day brings. It might be at 11:00 in the morning or it could be at 2:00 in the afternoon. Who knows?

Thus, Robin could eat her lunch whenever possible at work—there was no particular order to her day. This not only illustrates a highly flexible day, it also shows that Robin accepted the flexibility inherent in her job.

John also expressed flexibility in his schedule when it came to eating lunch:

I don't have to remember to go eat lunch. I know that I get hungry and then I go do it. And I don't block that time out either, because I can be flexible with it. I can work until 1 p.m. and eat lunch at 1 p.m or take lunch at 11 a.m.—however it seems to work out that day.

Both Robin and John expressed there was sufficient flexibility in their schedules to move tasks around as necessary on any particular day. By specifically mentioning lunch, they were both pointing out that eating was one of the most flexible tasks in their daily activities.

These statements reflect how many interviewees experience flexibility. Because of the many tasks most interviewees are required to complete on a given day, many accepted the need to be flexible. The to-do lists obtained as supplementary data demonstrated this; these documents showed that most tasks did not have a specific deadline attached. Rather, the lists were kept separate from a calendar, which was the additional tool of choice for to-do listers to keep track of pending deadlines and appointments.

LINEARITY

Linearity describes how a set of tasks is completed. Some tasks must be completed sequentially, one after the other (Ballard & Seibold, 2003). However, it is possible that other sets of tasks allow for multitasking, or the ability to work on several tasks simultaneously.

To-do lists were written with one task on each line, potentially indicating a linear pattern of working. This reflected the beliefs of some interviewees. For example, Callie bluntly stated,

“No, I cannot multitask. It’s hard for me to multitask. It’s such crap when people say they can drive and multitask. You switch. You focus on this and then you focus on this... So yeah, I don’t multitask very well. I usually lose focus if I do that. I have to do one thing at a time.”

Another corroborated this view when he stated, “Multitasking overall is a fallacy. You can only do one thing at a time.” Additionally, he demonstrated the switching Callie described when he discussed that sometimes he would need to complete two presentations, so he would open both files and ‘switch’ between them as he thought of what to include.

Karl supported the more linear pattern of working: “What stresses me the most is actually multi-tasking... I am happier when I can do one task at a time and take the next task and work with that.” Although a quick glance through most job ads proves that knowledge workers who can multi-task are in high demand, the data suggest that many workers prefer a more linear pattern of work.

Conversely, Monica said, “Yeah, I multitask,” and described that she would be working on one task while uploading/downloading files. She would use her to-do list to help her determine when this was possible, although her list had one task per line. Thus, to-do lists may or may not be indicative of the linearity people choose to follow while working. However, to-do lists may also be tools for facilitating multitasking because they help show the activities a worker can be doing while other activities may be occurring. Thus, a to-do list may in effect act as a Gantt chart or dependency graph.

SCHEDULING

The goal of having a schedule is to pre-determine the order in which tasks will be performed, when those tasks can be started, and ultimately, when those tasks can be completed.

Meetings were a typical example of scheduling. Meetings that were to take place at certain times were denoted in some way such that the to-do lister understood that the meeting was going to occur in a certain order and probably last for a set duration. For example, Matthew would include a weekly meeting that occurred at the same time on Fridays (with different durations each Friday) in the calendar that corresponded with his to-do list. Doing so enabled him to see what his Friday schedule was like—when he would be occupied in a meeting, when he would be able to work on the tasks listed on his to-do list, and how much time he could devote to each of these components of his job.

Unlike Matthew, who had reoccurring meetings, Robin did not have regularly scheduled meetings, making it even more important for her to use her to-do list to keep track of when she had a required meeting. Referring to these irregular meetings already jotted down on both her Microsoft Outlook calendar and the corresponding to-do list (see Figure 1 below for how she was able to view her calendar and to-do list simultaneously), Robin commented, “...I have a meeting on Tuesday next week and a meeting on Wednesday next week...I see that I have those meetings next week. I see what time they are and when they are.” Thus, she understood that scheduling involved knowing what time a particular meeting is set to begin and the duration of that meeting. Much like Matthew, she could use this knowledge to plan and schedule the rest of her week, particular when she needed to prepare for those two meetings and when she would be able to devote time to completing the rest of the tasks on her to-do list.

The image below is of the tool most commonly used by interviewees—Microsoft Outlook. Ruben provided this desktop image to illustrate his favorite Outlook features. This tool is useful because it enables interviewees to view their to-do list (labeled as tasks in the bottom center of the image), their daily schedule (top of the center pane), and a longer-term monthly calendar (top left pane) simultaneously. Interviewees that use Outlook state that because they schedule their activities based on deadlines, having a tool that allows them to have so many different scheduling views and their to-do list available simultaneously is particularly useful.

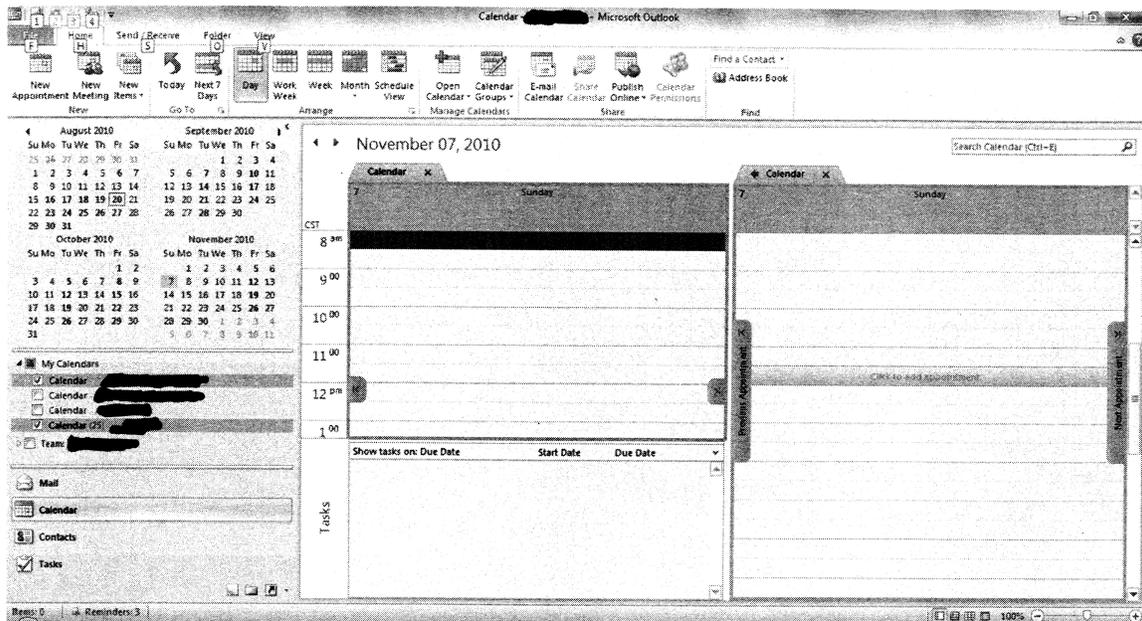


Figure 1: Microsoft Outlook screen shot

For one to-do lister, activities in her day are scheduled based on her to-do list. She described her daily activities in time blocks such as those shown in the daily scheduling feature in the Outlook image above. Each block of time varied daily, but in general she had the same activity at the same time each day. For example, she lectured

from 8:20 to 8:50 each morning, but the particular topic and curriculum that had to be covered varied. In her case, her to-do list illustrates scheduling as an enactment of time because meetings and activities that affect other people dominate her day.

PRECISION

Precision refers to the degree of certainty in the timing of a task's execution. High precision activities require that task's timing be exact, down to the minute or even second. Conversely, low precision activities have no such requirements, and their timings can vary greatly.

Avery noted that his meetings never start late, but made special note of one particular meeting that started a few minutes early because everyone was already present, saying "...but we [were] early so that [was] okay..." The expectation is that meetings need to start exactly at the time specified, never later than what is agreed upon. Avery associates times with nearly all of his tasks, in order to ensure that he is punctual – something that is expected of him in his organization.

On the other hand, Monica's meetings started at exactly 9:00 am on Tuesdays and Thursdays. Because these meetings/teleconferences typically involved telecommuters who called in from all over the country, they started at *exactly* 9:00 am. (in her time zone).

Some to-do listers claimed that precision was not as high in their places of work as outsiders might expect. Mason indicated that he experienced low precision in his work because deadlines tended to be moved back, or delayed (Ballard & Seibold, 2003). He discussed that work for publications (such as abstracts and conference papers) would have a deadline that often got moved back and this was normal to him: "Deadlines do tend to slip a lot in my line of work... It's just the way it goes."

Construals of Time

SCARCITY

Construals of time as a finite and irrecoverable resource can make it appear to be quickly exhausted, becoming scarce in the face of impending deadlines (Ballard & Seibold, 2003).

Some interviewees kept extremely long to-do lists that spanned many days, weeks, or even months of activities. These listers also tended to view time as a scarce resource, becoming easily overwhelmed with the quantity of work to be completed. Leah gave the most direct example of how she felt time was scarce when she had a long to-do list: “My to-do list was like really, really long. And then I thought to myself that this is too much for me... I can’t manage it.” By saying she couldn’t ‘manage it,’ she was indicating that there was not enough time to complete everything on her list. For those knowledge workers who keep extremely long to-do lists, time appears to be considered scarce, as they never seem able to complete the entire list.

Many interviewees commonly move incomplete tasks from one day’s list to the next day’s list. These same interviewees commented that they tend to view time as scarce. As Javier pointed out so matter-of-factly,

I keep a to-do list for each work day that has both new tasks for the day and leftovers from previous days. Usually I try to cross everything off of my list each day, but sometimes that just isn't possible because I run out of time. So anything that cannot get done same day gets transferred to the next day's list.

Avery also transferred incomplete tasks to his next day’s list. He commented, “If I didn’t do it, I just copy what was there from yesterday and put it into the next day.” This highlights that his time at work was finite but his list was not, so his time was scarce enough that he could not complete his to-do list every single day. For those knowledge

workers who consistently transfer tasks from one day's to-do list to the next day's to-do list, time appears to be considered scarce simply because not everything can be accomplished in the same day.

Karl also experienced scarcity, but in a different way. His to-do list was composed of many tasks that had specific deadlines associated with them. However, he was not always able to meet these deadlines. He described what he normally said to his boss when he failed to meet a deadline: "You say, 'I'm sorry...I did not have the time to do it. I should have finished it. I didn't have the time to do it.'" In this statement, Karl repeatedly highlights the scarcity of time when he says he didn't have the time to complete the task. There was a finite amount of time allotted for him to complete a task on his list, but it was simply not enough for him to complete it.

Amber knows from first-hand experience that sometimes her to-do list is simply too long to complete during normal work hours, but it is not always an option to continue the work tomorrow. Her only option some nights is to work late: "But I have been thinking that it's not enough hours during the day even though I work until 10 p.m. three times a week. I can't get it all done." To her, when there is not enough time to get her work done during normal work hours, overtime is the only option. However, sometimes working overtime is not enough to finish her work and there is only so much overtime she can put in because time is finite and consequentially, it is a scarce resource.

Hannah experienced the scarcity of time at home. Her household to-do list contained several housekeeping tasks that she felt took away time from other things that were important to her. She discussed hiring a housekeeper, saying, "It would give me more time to do things that I want to do, time with my son and everything else." The only way to have more time was to delegate some of her to-do list to a housekeeper because time is a finite resource.

Scarcity was experienced in many different ways by the interviewees. For some, it meant having a list so long they felt they could not finish the list. For others, it meant transferring incomplete tasks from one day's list to the next day's list because there was not enough time to complete the task on the day it was initially listed. Still others felt time was scarce when they could not complete a task before the assigned deadline or they had to work overtime. Those with families would delegate some tasks to others at home in order to have more time to spend with their loved ones. These were the most common ways scarcity was represented in this study.

URGENCY

While time can become scarce in the face of an impending deadline, the task on which the deadline has been imposed is given greater and greater urgency (Ballard & Seibold, 2003). Urgency reflects the importance of completing a task as soon as possible.

Although urgency was most often expressed in terms of deadlines in ways that match the above definition perfectly, the most obvious example of urgency came from a person in the military when he stated, "If it is more important tasks, to [the] widest extent it can be a matter of life and death...it can be really critical." For this interviewee, tasks on the to-do list were dropped if an urgent task, such as the one he described, presented itself. Therefore, tasks on his list were prioritized based on urgency of completion. Once the urgent task at hand was completed, he proceeded as normal with the tasks on his to-do list.

Karl sorts his to-do list into four quadrants, with two columns and two rows using Covey's Time Management Matrix (Covey, Merrill, & Merrill, 1994). The top row represents tasks that are considered important, while the bottom row represents tasks that are considered unimportant. These rows are crossed with two columns—one that

represents high urgency and one that represents low urgency. He considers items that are in the high importance row to be more urgent than those in the not important row, especially if he does not have as much time left in the day to accomplish those tasks. The tasks listed in the low importance row are not considered urgent and therefore do not require immediate completion. See Figure 2 for an illustration of Karl’s sorting strategy.

	Urgent	Not Urgent
Important	These items are addressed first.	These items are addressed second.
Not Important	These items are addressed third.	These items are addressed fourth.

Figure 2: Karl's To-Do List

Referring to time and deadlines, Heidi commented, “If I have this limit I will choose the task that I have to finish first just to put it away.” This demonstrates the relationship between deadlines and priorities. Deadlines influence urgency, which influences prioritization. For Heidi, her deadlines dictated the urgency she felt to accomplish her tasks. She then prioritized her to-do list based on how urgent she perceived each one to be.

To-Do Lists as Memory Aids

For Leah, having a pen and paper to-do list was advantageous because as she says, "...if I write it down, I remember it more." When asked about how her to-do list influenced her stress levels, she commented, "Because when I write it down I don't have to use energy to remember it." Not only did Leah's list aid her memory, it allowed her to direct her energy to tasks other than keeping track of what she needed to do.

Hannah claimed that her to-do list helped her remember the most important things, and therefore helped her prioritize her daily tasks: "It's much easier to prioritize and not forget the most important things if you just put them down." Without the list, she would not be able to remember all the important things she needs to complete or be able to prioritize those tasks properly.

For Monica, things that she needed to do would pop in her head at times when she could not deal with that task—usually during important meetings or telephone calls. She would keep her to-do list with her at all times because, as she stated,

It helps me keep track of things that pop up in my head that I don't really need to deal with right now but I need to get done eventually, like stuff I need to do when I get home or things I need to remember.

Instead of having to remember these tasks that would inconveniently pop into her head, all Monica had to do was write the tasks on her to-do list, which would remind her of those tasks when she was able to complete them.

To-do lists did not simply tell interviewees what they needed to do—they also helped them refocus by reminding them what they were working on prior to interruptions. Robin's job has constant interruptions—what she calls 'putting out fires.' She discussed having to leave her desk to solve some extremely urgent issue, but then having to return

and continue working as normal. For her, seeing her to-do list simply reminded her what she was doing. In one glance, she was able to tell what she had already accomplished and what needed to be completed, making her transition from ‘putting out fires’ to normal activities smoother and easier.

CHAPTER FIVE: DISCUSSION

Interviews with knowledge workers who use to-do lists revealed many interesting facts about how these workers' routines become entrained to colleagues' schedules and to non-work activities, as well as how they perceive and interact with time. Much of this knowledge can be gleaned from their to-do lists, allowing us to gain insight into knowledge workers through the to-do lists they create.

The to-do lists in this study revealed the list makers' sense of task importance, suggested potential entrainment patterns to colleagues' schedules and to non-work activities, illustrated five enactments of time and two construals of time, and showed the use of to-do lists as a memory aid.

Task Importance

Task importance is the level of significance a person associates with a task; it is how important the task is for that person to complete. This characteristic must be distinguished from urgency, which is typically influenced by approaching deadlines and therefore has a temporal component. Unlike urgency, task importance was not described in the data as having a temporal component. List-makers first identified the task as important to put on their list, and then reviewed their lists to identify urgency. The urgency of the task was then used by to-do listers to prioritize tasks on their lists.

The importance of the task on its own seems to have had little to do with the assigning of priorities except for the one interviewee who used a four-quadrant design (see Figure 2). All other interviewees did not indicate importance on their lists, so the importance level was not assigned to tasks. Tasks were not ranked in order of importance; rather they were ranked based on urgency. Therefore, to outsiders studying

to-do lists, the importance of each task seems homogenous, with no task being more important than another. While each task appears to have the same level of importance, this may or may not in fact be the case.

While the interviewees all indicated that the tasks they included on their lists were important to them—primarily because of the negative consequences associated with not completing a task—it is not necessarily the case that all to-do listers would find the same set of tasks as important. This is due to the subjective nature of a task’s importance; not all people find the same things to be important. While the importance of a task on a list may be individually subjective, by looking at the lists of multiple individuals who are employed by the same organization in similar positions, overall, contextual themes may be gleaned. If multiple to-do listers in the same organization have lists that contain sets of similar tasks (no matter the level of abstraction), those tasks may be of organizational importance more so than personal importance. In this way, it may be possible to infer the overall objectives, goals, and values of an organization through employees’ to-do lists.

Entrainment

To-do lists demonstrate that the modern knowledge worker is entrained to non-work activities and colleagues’ schedules. This shows the priorities of these workers and suggests that both personal and professional relationships are understood to be important to people’s careers. This really means three things about the industry of knowledge: The increasing use of to-do lists suggests that the knowledge industry is now deliverable-oriented; evidence of entrainment to colleagues’ schedules in knowledge workers’ to-do lists indicates that the knowledge industry is becoming increasingly group-based; and modern knowledge workers seek a work/life balance as illustrated by entrainment to non-work activities visible in knowledge workers’ to-do lists.

First, the tasks on a to-do list are aimed at producing a deliverable. These knowledge workers consistently focus on delivering results as required by their employers. The use of lists indicates that these workers have very few routine tasks; their daily activities are varied enough that lists are helpful organizational tools that enable them to consistently deliver results.

Entrainment to colleagues' schedules demonstrates that these knowledge workers work closely with coworkers instead of completely independently. As described earlier, many employers make shared calendaring systems available to facilitate group work, particularly the scheduling of such work. The availability of this shared schedule demonstrates the organizational expectation that work be done in groups. Consequently, many of the tasks on knowledge workers' lists explicitly (e.g. 'meet with Bob') or implicitly (e.g. 'finish my half of the presentation') involve others.

Finally, to-do listers try to maintain personal lives and relationships outside of work, making it necessary for them to devote time to non-work activities. For this reason, many workers listed non-work activities on their to-do lists, showing the importance of these activities to workers and possibly referring to the importance of maintaining work-life balance (Kofodimos, 1993; Greenhaus, Collins, & Shaw, 2003).

Enactments of Time

The most common enactments of time illustrated by to-do lists include pace, flexibility, linearity, scheduling, and precision.

PACE

This enactment of time denotes "the tempo or rate of activity" (Ballard & Seibold, 2003, p. 386) and exists on a continuum that can be discerned from knowledge workers'

to-do lists. Pace was indicated by the length of to-do lists and varied accordingly with the nature of each interviewee's job.

First, a worker's pace is determined by the urgency of the tasks on his or her to-do list. The more urgent a task, the faster the pace at which the task is performed. Conversely, the less urgent a task, the slower the pace at which the task is performed. For one interviewee whose tasks could mean life or death for soldiers at war for his country, working as fast as possible was not optional given the urgency of his work. For another whose deadlines almost always got pushed back, allowing him more time to complete his work, working at a slower pace was possible and often done.

Additionally, the length of a worker's to-do list may help researchers determine the pace at which an employee is working. One caveat to this is that there is no set level of abstraction for a to-do list, meaning each individual may be more general or more specific when including tasks on their lists. As Bellotti and her colleagues described in their requirements for a task list manager system, such a system must feature "No formal task description, categorization or decomposition" (2004, p. 737). Instead, users must be able to include tasks that may potentially have varying levels of abstraction (Bellotti et al., 2004). For example, one person's list may contain a task item such as "complete a report," whereas another person's list may direct him or her to "complete a chapter of the monthly report." Completing an entire report takes longer than completing a chapter of a report, so even if both people only had that one task listed, the person who needed to complete an entire report in a day would work at a faster pace than a person who needed to complete only a chapter of a report in that same day (provided the report consisted of several chapters and each chapter was about the same length). In fact, some tasks on the same person's list may be more specific or more general, depending on how much the person needs to know to satisfactorily complete that task. That being said, if you looked

at the same person's lists over time, it is highly likely that on the days/weeks/months that the to-do list contained more tasks (that must be completed in that specific time interval), the faster the pace at which the person worked.

FLEXIBILITY

Flexibility describes the exactness of the timing and sequencing of tasks in a plan (Ballard & Seibold, 2000; Ballard & Seibold, 2003). The association of times with tasks on a knowledge worker's to-do list appears to indicate the amount of flexibility that a worker has with regard to their daily activities. Additionally, the fewer tasks scheduled on a calendar that corresponded with a worker's to-do list, the more flexibility a worker experienced.

Flexibility was illustrated by the fact that many to-do lists were either not in a particular order or did not contain explicit deadlines, therefore the tasks could be done in the order of the to-do lister's choosing.

For example, it was unusual for Mason to have more than a few meetings scheduled per month and he often denoted on his to-do list that these infrequent meetings tended to be brief (i.e. meetings lasted under an hour). The lack of specific times and deadlines listed for the vast majority of his tasks showed the flexibility he experienced in his normal daily activities. Most days, Mason was free to work on his research he saw fit. Many of his fellow to-do listers who experienced this high degree of flexibility had lists similar to his—where the tasks were simply listed with no specific time association recorded.

Unlike Mason, almost all of Mary's tasks included an association with a particular time. Her day was rigorously scheduled, forcing her to constantly watch the clock. The items on her to-do list typically had at least a date written next to them, if not a specific

time. Therefore, her to-do list showed she had limited flexibility during her workday because her tasks had to be completed in a specific order and often at particular times or by assigned deadlines.

Whenever times or dates were included on the to-do list, or when the calendar associated with one's to-do list was relatively full, the attention to these times and dates reflected lower flexibility in one's day. For those knowledge workers who did not have to complete their day's tasks in a particular order or at particular times, higher degrees of flexibility were experienced.

In many cases where an interviewee had both a to-do list and a calendar, the calendar held primacy over the list. Meetings and appointments placed on the calendar have rigid time constraints – one must perform the associated action at the time listed. For example, one must show up to a meeting or appointment on time – one cannot arbitrarily move these obligations or alter the ordering in which they are done.

Additionally, the to-do list itself now takes on a secondary role for those who also keep a calendar. This is the medium onto which listers placed non-rigid tasks. As a result, these tasks sometimes become less important than those on the calendar – they become hopes that the lister wants to accomplish, but he or she may not necessarily be able to guarantee their completion.

LINEARITY

This enactment of time discusses how tasks are completed. If tasks are completed one at a time, one after the other (Ballard & Seibold, 2003), then they are said to be completed in a linear pattern. If tasks are completed simultaneously, the person working in this manner is said to be multitasking. Some workers chose to work more linearly, some preferred multitasking. As most lists are simply collections of independent tasks,

some to-do listers choose to use them as a means of facilitating multitasking, while others prefer to work linearly – the way most to-do lists are structured (i.e. one task per line).

Most interviewees discussed their pattern of work as ‘switching’—they would switch frequently between tasks as they were able to work on them. However, they could not work simultaneously on tasks. Ruben was one such worker who described how he often needed to work on two PowerPoint presentations for upcoming meetings. He would create files for each presentation and then ‘switch’ between them as he thought about what to include in the presentations. He described that he could not actively be working on both of them at the same time (multitasking) because he had to focus intently on what he was doing.

A more linear pattern of task completion was the preference of all but a few interviewees because a linear pattern of work increased their sense of accomplishment. If a worker constantly switched back and forth between two tasks, then it would take twice as long for them to scratch or delete anything off his or her list. However, if a worker focused all efforts into completing one task at a time, then that person could clear an item from his or her to-do list and use that as motivation to continue working. As one interviewee claimed, scratching things off the list was a great sense of relief and accomplishment.

Although lists visually contain a bias towards linearity, at least half of the interviewees did claim to multitask. Monica described having multiple computer monitors at her desk to enable her to multitask. Oftentimes, she would have a conference call and she would watch the presentation slides on one monitor while editing a document on another monitor, and it was likely that she would be downloading or uploading files at the same time. She felt that she could get more done this way, and this led to a greater sense of accomplishment for her.

Although some workers were multitaskers, all lists provided by the interviewees were written linearly. The most common way to write a to-do list was to simply list one task per line on paper or in a computer application; only two interviewees varied from this pattern. One of the interviewees who differed from the majority used a four-quadrant design (see page 35 for a description of this listing tool), where the interviewee's tasks were written line by line in each of the four boxes used to categorize tasks, and another had a scattered list that was essentially a bunch of different lists blocked at random points on a page. The figure below shows an example of this scattered list. It is important to note that while tasks are blocked into categories, the tasks within those categories are written in neat lines.

-
- Project A
 - Task A
 - Task A.1
 - Task A.2
 - Task B
 - Task C
 - Project B
 - Task A
 - Task A.1
 - Task A.2
 - Task B
 - Task C
 - Project C
 - Task A
 - Task B
 - Task C

Figure 3: Example of a scattered list

As the data pointed out, the way in which someone writes their to-do list does not reliably enable another to predict his or her preferred pattern of work. Although 87% of

those interviewed wrote their lists with only one task per line, the interviewees were split on whether or not they multitasked.

While the way in which a to-do list is written may not be a reliable predictor of the pattern of work performed by the to-do lister, the list itself may facilitate multitasking simply because it shows all the tasks a worker can be doing while other tasks are occurring. As described above, Monica was comfortable multitasking. Her list included items such as “download new trademark requirements,” “attend teleconference at 10 a.m. EST,” and “edit the quarterly report”—things that she would probably do one at a time if a quick glance at her list did not reveal that she could begin downloading a file that would continue to download while she listened to the teleconference and edited the quarterly report.

One’s pattern of work was influenced by the sense of accomplishment they felt. If a person worked more quickly focusing on one task, then they worked more linearly. If a person felt they had to squeeze every ounce of time out of their day (which also reflects they were more prone to feel time is scarce), then they multitasked. For all of these knowledge workers, this was an individual choice and all that mattered was their work was finished before deadlines.

SCHEDULING

Scheduling is particularly important if there are specific deadlines or time allotments for tasks.

For a to-do lister, scheduling is particularly important because it added order to their day by determining the order in which tasks will be accomplished. To-do listers use lists to create order in their day—to make their day more predictable. Having a schedule embedded within their to-do list system is one more way to make a knowledge worker’s

day more structured. In fact, events that were scheduled helped interviewees plan out the rest of their week because it told them when they would have a chance to work on the other items already included on their to-do lists.

Two of the interviewees who were asked to validate the claim above (about the need for structure) discussed another point of scheduling: to set the expectations for the day. For example, if there was a meeting, having an established schedule set the expectation that the morning should be spent preparing updates for the meeting, the meeting would take up to an hour of valuable work time, and there was an approaching deadline, so the worker's pace would have to increase if he was assigned any action items from the meeting. Thus, having a meeting scheduled could tell this particular to-do lister what he should expect from his day.

Scheduling is particularly critical for those who have both a calendar and a to-do list. In these situations, listers need to schedule time for to-do list tasks that are not necessarily events (e.g. meetings or appointments). If time is not scheduled for these tasks, appointments and meetings could fill up one's calendar before any time is scheduled to complete the to-do list tasks (Bellotti et al., 2004).

PRECISION

High precision is indicated on lists when specific times are provided, while low precision is indicated on lists when deadlines are pushed back or no specific time is written explicitly on the list (although times may be implicit and simply not written down).

An interesting difference between the interviewees' to-do lists was that some listed a specific time or deadline for most tasks, if not each task, while others tended not to associate times with their tasks.

While indicating specific times associated with particular tasks likely increases an employee's precision in the workplace because it aids memory, the data did not clearly show this. Some workers who did not list specific times on their to-do lists claimed to never miss deadlines and suggested they had not missed meetings. Perhaps this was because these tasks were so salient in their minds that a quick glance at the task on their to-do list was enough to remind them of the deadline. Perhaps some workers listed times and tried to be very precise because it was the expectation in their organization's culture.

It was clear that the precision varied for each task because some tasks would have a time listed next to it on their list, but others would have no indication of a deadline. This was found to be the case with most of the knowledge workers interviewed, with the only variation being the percentage of tasks that had a time associated with them.

Construals of Time

The most common construals of time presented in the data are scarcity and urgency.

SCARCITY

All interviewees very much believed in the scarcity of time, where time is viewed as a finite and irrecoverable resource (Ballard & Seibold, 2003). While they all had different ways of demonstrating this belief, it was unmistakably expressed as they discussed their to-do lists.

An extremely common practice was to move incomplete tasks from one day's list to the next day's list, showing there simply was not enough time in one day to finish all of the work to be done in one day. If there had been enough time, the day's tasks would have been completed that very same day. This common practice not only illustrated that time was scarce *today*, it also demonstrated the expectation that there was more time to

come *tomorrow*—that there is always tomorrow to finish work. Thus, for the to-do listers who moved tasks to the next list, scarcity was experienced in the short-term but not necessarily in the (relatively) long-term since the perception is that there is always more time to complete your work.

Another way scarcity was demonstrated was through working overtime. This overtime was completed after the normal work hours, during time that was normally used for non-work activities. Thus, whenever a worker stayed late to wrap-up a project, he or she was showing time is scarce because he or she was making a tradeoff. Because time is finite, tradeoffs often have to be made because the amount of time in a day is a fixed value.

Finally, when it was possible, knowledge workers outsourced personal chores because they found time to be scarce. For one interviewee, this meant hiring someone to help with household chores so she could devote more time to her family. Since time is fixed, the only way to have more time available for the things one wants to do--or even has to do—is to find someone to do some work for you. Thus, outsourcing household work (such as cleaning, landscaping, or even hiring a contractor for remodeling projects) is a strategy for coping with the scarcity of time.

URGENCY

As described earlier, task importance explains how a task initially makes it onto a to-do list. Urgency explains how quickly a task needs to be completed, and is reflected by which tasks get accomplished first.

When looking at a to-do list, it is possible to discern a task's level of urgency more so than a task's importance. For example, many interviewees ranked the items of their list based on which ones needed to be completed first—this was based on urgency,

which is primarily based on approaching deadlines. Ranking was typically seen as numbers squeezed at the beginning of an item; the lower the number, the higher the level of urgency associated with that task. For example, if a task was considered the most urgent and written on the list, a number “1” would be scratched to the left of the task by the to-do lister to show that it had top priority because of its urgency. The next most urgent task would have a “2” next to it and so on. The most urgent tasks were completed first and in the order of most urgent to least urgent. Therefore, by looking at which items on a list were either scratched out or by tracking which ones were simply deleted (this depends on the method of to-do listing used), one can infer which tasks were considered most urgent.

To-Do Lists as Living Documents

As previously mentioned, not all to-dos actually get accomplished (Bellotti et al., 2004), so it cannot be assumed that the ultimate goal of the to-do list is to complete all of the tasks listed. Rather, it should be viewed as a guide for how to organize one’s time. As long as one is still alive and therefore still has time, the list will evolve with the demands placed upon the list-maker.

In all cases, the lists used by interviewees were continuously evolving. Sometimes one would throw a completed list away, but would immediately replace it with a new one. More commonly, interviewees simply shifted incomplete tasks to the next list (whether it be for the following day or the following week’s list) such that no to-do list was ever completed, but constantly changing as new tasks were either assigned or became necessary.

The very fact that most people seemed to conceptualize to-do lists as constantly evolving, living documents contradicts many commonly held beliefs about why people

use to-do lists in the first place. While some might argue that a to-do list is specifically used for the goal of completing every task, those interviewed for this study indicated they believed their lists would never be finished.

To-Do Lists as Memory Aids

Memory aids are devices used to supplement one's memory. While there are many tools with which to do this, to-do lists are one of the most popular. Several interviewees described using their to-do lists as memory aids. As described earlier, health issues can affect memory and focus, but only one interviewee commented that he or she had Attention Deficit Disorder in their interview. This person used to-do lists to refocus whenever he or she was pulled away from the task at hand. The other interviewees did not indicate that they used a to-do list to compensate for a health issue, but instead these handy lists acted as memory supplements that allowed them to keep track of their hectic work environments and personal lives.

To-Do Lists for Self-Communication

People use their lists to communicate to themselves what they need to accomplish. For those who can cross out tasks (either on the computer or by drawing a line through a task on a paper list), or those who use checkmarks/checkboxes, these lists can also tell them what they have actually completed. Much like books communicate thoughts to a reader, these lists can communicate back to their creators. To-do lists are essentially time diaries that can answer two questions: What was one doing earlier today/yesterday/last week/etc.? What does one need to do today/tomorrow/etc.?

Limitations

Because snowball sampling was used to collect data, the interviewees shaped the sample described in this study and may have systematically excluded certain segments of the to-do lister population (Schutt, 2009), creating bias in the data collected. However, because previous academic studies have not presented data describing the population of full-time workers who use to-do lists, at this point it is difficult to describe how this sampling method may have biased the study or the effects the aforementioned bias may have had on analysis (Schutt, 2009). In turn, this limits the generalizability of this study (Schutt, 2009), partially because the lack of prior research means it is difficult to claim this sample is representative of the population in question.

Not every interview participant provided to-do lists samples that covered a consistent amount of time, although the pre-interview email requested to-do lists from the past month. For example, some participants only provided the current day's to-do list, while others provided months of to-do lists. Still others chose not to provide a copy of their to-do lists, usually citing confidentiality concerns (although each interviewee was aware of the protections afforded them through the IRB process) or admitting to throwing them out as the tasks listed were completed. Although it is difficult to compare the different time frames of each participant's to-do list, these documents are still highly valuable for clarifying participants' statements during their respective interviews.

CHAPTER SIX: DIRECTIONS FOR FUTURE RESEARCH

Due to the lack of academic work about to-do lists, extending this topic in almost any direction would be a novel contribution. Before more research is completed, it would be helpful if researchers agreed on a specific definition of to-do lists. Even if this definition was very broad, it would still help focus further research.

A study yielding information regarding the impact of to-do lists on stress levels, and how these levels affect workplace relationships, could be particularly fruitful. Interviewees in this study often claimed that a to-do list both created anxiety while simultaneously comforting them because it helped them organize their tasks, making it difficult to tell if the anxiety and comfort canceled each other out or if one was stronger than the other. Knowing this and studying how it affects workplace relationships could help managers determine best practices for coordinating their employees and which tools should be made available to their employees—tools that have specific features for making to-do lists or perhaps even tools for stress reduction. Another question to answer is whether there are particular characteristics of a job that make a person more likely to use to-do lists. If so, what are those job characteristics?

Another interesting possibility would be to perform a longitudinal study on a group of to-do listers to see how their lists evolve over the course of their careers based on factors such as societal changes and technological innovation.

Some interviewees used times or calendar appointments for many of the tasks on their to-do lists, while others hardly used any. This was the case even when two different interviewees both had similar numbers of time dependent tasks, such as meetings. Why do some workers associate times with the tasks on their to-do lists while others do not? What influences these reasons? If a large percentage of workers within the same

organization use the same structure for labeling time dependent tasks (i.e. labeling with times or without), this may say something about the overall culture of the organization. This begs the question, how does an organization's culture influence these demarcations on to-do lists?

While the importance of a task is not necessarily, if ever, denoted on a worker's to-do list, each task must exceed a certain importance threshold to the list maker in order to make it onto the list in the first place, while another worker might not have even considered the same task important enough to list. However, it may be possible to glean information from the lists of multiple workers in the same group or organization. If several to-do list makers have similar job responsibilities within the same organization, is it possible to discern how their employers view the importance of their related tasks? Can the goals and objectives of the organization be inferred by multiple, corroborating to-do lists? Consider two internal consultants who are avid to-do listers working for Company A. If Company A's goal is customer satisfaction, it is likely that even if the consultants' jobs are not based in customer satisfaction that some items on their list will involve customer satisfaction.

CHAPTER SEVEN: CONCLUSION

To-do lists are a popular way for people to keep track of what they need to accomplish in various aspects of their lives, particularly in their professional lives as members of an organization. They come in various forms, ranging from simple lists written with pen and paper, to software that allows multiple organizational members to coordinate their daily activities. In all cases, to-do lists help the knowledge workers that use them to either remember what must be done in the future, or remember what has been done in the past.

Knowledge workers, workers who deal with large amounts of complex information, perform a large set of varied tasks on a daily basis, both individually and with colleagues. They also tend to appreciate their personal, non-work activities, and tend to explicitly ensure that they reserve time in their busy schedules to accommodate those activities.

This study shows that knowledge about a to-do lister's enactments and construals of time, as well as entrainment to colleague and non-work cycles, can be identified through their to-do lists. By looking at knowledge workers' to-do lists, it is possible to ascertain how these workers must adjust to the outside influences of colleagues' schedules and non-work activities, as well as how they perceive of, orient themselves to, and interact with time.

While this information is valuable, it leaves many questions unanswered: What is the effectiveness of these lists? What job characteristics make people more likely to use to-do lists? Also, what is the impact of these lists on stress levels? Answering these questions would help to improve our understanding of knowledge workers and how they

manage their time. In addition to these questions, it may be possible to glean information about entire organizations, specifically about their culture and priorities, by analyzing the to-do lists of many of the knowledge workers within a particular group or organization.

APPENDIX A: CONSENT FORM

Our experience of time as individuals helps to shape the quality of our lives. Your participation in an interview regarding your to-do lists and other strategies you use to cope with demands on your time would be of great value to a research project currently being conducted at the University of Texas at Austin in the Department of Communication Studies (IRB 2008-04-0055: *The Times of Our Lives*). Your participation in this research project is entirely voluntary and would be greatly appreciated. You can refuse to participate without penalty. You can stop your participation at any time and your refusal will not impact current or future relationships with UT Austin. You are one of approximately 200 persons being asked to participate. The interview is expected to take approximately one hour.

The data from this study will be used to contribute to scholarly literature on the human experience of time and time management strategies. The findings will also be presented in academic papers submitted for publication. You will not be identified personally in any of those papers or materials.

In this interview you will be asked to talk about the contents and strategies reflected in your to-do lists, calendars, and other time management tools. I would like to have your permission to audio tape your interview in order to assist with notetaking.

A pseudonym will be assigned to your interview to protect your confidentiality, and additional steps will be taken to safeguard confidentiality as well. First, you may stop the tape recording at any point during the interview and you may decline to answer any question in the interview. Second, your name will not be attached to the audiofile. A code number will be used to identify your audiofile and only members of the research team will have access to information that links your name with that code number. Third, the data will be stored on a password-protected computer. Fourth, only generalized themes or unidentifiable quotes will be shared back to the community or in academic presentations of these study results.

This research may benefit you by providing information about a range of strategies that are effective in helping members to cope with the variety demands on their time they face at home and work. After this study is completed you will receive a copy of the report summarizing my results.

If you have questions about your rights as a research participant, complaints, concerns, or questions about the research please contact Jody L. Jensen, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects at (512) 232-2685 or the Office of Research Support and Compliance at (512) 471-8871 or email: orsc@uts.cc.utexas.edu.

Authorized persons from The University of Texas at Austin and the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order.

Thank you for your help in this study,
Dawna I. Ballard, Ph.D., Associate Professor, Department of Communication Studies
University of Texas at Austin Phone: 471-1946; Email: diballard@mail.utexas.edu

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

Signature and printed name of person obtaining consent Date

You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this Form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

Printed Name of Subject Date

Signature of Subject Date

APPENDIX B: INTERVIEW GUIDE

Background/Overview:

1. Please describe/name the lists and/or tools (e.g., DayPlanner, to-do list in paper notebook, Notebook in iPhone, emails to self, Evernote, [paper or electronic] stickies) that you use most frequently to remind yourself of pending tasks to complete or appointments to attend.
 - a. If it has a commercial name, please clarify with details (i.e., electronic? etc.)
 - b. Why do you rely on these tools specifically? Which features of this tool/tools is most important to you?
2. Do you rely more on appointments, lists, or a rough mix of both? Do you feel this dictated by the type of work you do or by personal preference?
 - a. Why is it appropriate for your circumstances?
 - b. Can you give an example of the type of appointment or list (or both) approach you use (e.g., lots of appointments with clients, lots of lists of various things to-do [at most any time])?
3. Please describe/name some of the items on your lists and/or appointments.
4. Which (specific or general) tasks or appointments are repeated most often (e.g., calls to family, calls to clients, reports to complete, personal errands, etc.)? Can you share some examples?
 - a. Are there items on your list that are pure routines? Things that you do out of habit or tradition that are still important to you?
 - b. Are there any such items that aren't listed?

Challenges to your to-do List:

5. Please characterize the range of various types of items (work and non-work) on your lists and/or appointments.
6. Which get completed most readily and which do you put off for the longest? Why?
 - a. Are certain categories (work, non-work, etc.) prioritized over others consistently?
 - b. Do you highlight these categories in different ways using your tool(s) of preference?
7. Do you have a list of things you would *like* to get done? Is there a list of things you'd like to do if you ever get a break or vacation?
8. Looking back across time, what types of items or appointments are missing from your lists based on a lack of time?

- a. For example, this might be something that you used to do but no longer do or something that you always planned/hoped to do, but never completed. For those items, did you find/hire someone else to do them? Did you delegate them to someone else? If so, who?
- b. In short, how have your long standing tasks been resolved? What is your satisfaction with this resolution?

Strategies for your to-do List:

9. What are your strategy/ies for completing the various items on your to-do list?
10. In the past, when you have had to "catch up" due to an illness or travel or other obstacle, how do you approach your to-do list? Put differently, what is your strategy for "getting through" everything?
11. Do your to-do list items require exclusive concentration or do you find the need to multi-task in order to complete tasks? If so, describe what that looks like and which tasks involve different kinds of concentration.
12. Do you work mobily (from various locations) in order to complete tasks or is everything in the same place?
 - a. Does this involve the use of technology sometimes? Always?
 - b. Do you have multiple offices—such as one at home or at work?
13. Are there any tips or “tricks” you (sometimes or always) use to get things accomplished?

Miscellaneous issues with your To-do List

14. Do you see any changes over time in the tasks you have to do or the ways you get them accomplished? Tell me how your to-do lists have evolved over time.
15. Do you and your friends/family talk about your to-do lists? How and why (e.g., perhaps in the context of arranging shared activities)?
16. What do you tell friends/family when they need some tips for getting things accomplished?
17. Who else should I speak to about these issues?

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