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Time Management and Procrastination

Summary

This chapter combines the topics time management and procrastination. Time management is an overarching term derived from popular notions on how to be effective at work. Procrastination has been mainly researched from a personality perspective, addressing the emotional and psychological issues of the phenomenon in more detail. First, I describe time management and procrastination, and next I address interventions that may help people in overcoming procrastination. Studies on time management show that it is a useful intervention to gain control and to reduce stress. Three types of interventions have been used to overcome procrastination: training self-regulatory skills including planning and time management; building emotional strength; and using social support. There is no clear evidence pointing out whether all types need to be used for all people, and a more individually targeted approach is probably best. Planning and time management should be the core of the intervention. However, planning one's own the behavior is partly trait-like, has emotional connotations, and involves self-regulation. Thus, many find procrastination difficult to change. That is why planning is probably not enough to reduce procrastination. Procrastinators need to develop emotional strength and benefit from support of others to provide the control that they are lacking.

Introduction

Time management and procrastination would appear to be logically related, in the sense that time management may be a way to overcome procrastination. The research in the two areas, however, has been relatively separate. Perhaps because some procrastination researchers, such as Ferrari (2010), find that "Time management skills do not help chronic procrastinators. Time management is nothing more than a Band-Aid." (p.6). In this chapter, I

aim to answer the question to what extent planning, the core of time management, helps to overcome procrastination. The recent developments in both research fields will be reviewed, first time management and then procrastination. Most studies on both topics have been conducted among students, and only a handful of studies have combined the topics. I will then discuss which interventions have been shown to reduce procrastination, whether these have been subsumed under the term time management or not. Throughout the chapter, I will focus on studies that are work-related.

Theoretical framework

Time management (TM) can be seen as a container concept that includes several tools to organize work and life in order to accomplish tasks effectively and efficiently. The concept of managing time is awkward, as if anyone might influence time in some way, while in fact only activities are organized and managed over time. TM has been a popular term ever since behaviors of successful managers were systematically assessed and translated into advice (McCay, 1959) and were popularized (Drucker, 1967). It is important to realize that a wise time manager in these books is an executive, who has the discretion to make autonomous decisions. This person is allowed to delegate or can altogether not attend to certain tasks.

As TM was derived from practice, it remained without a theoretical basis for a long time. Yet, its principles can be incorporated into self-regulation theory (van Eerde, 2007). Behavior is regarded in a dynamic cycle in which a person adapts to changing circumstances. The behavior includes cognition, affect, and volition (Lord, Diefendorff, Schmidt, & Hall, 2010). Self-regulation is also referred to as self-management, and TM is a specific case of it, focused on the use of time.

Figure 1 shows TM as the dynamic cycle in the center: planning, implementation, and evaluation are the three phases that may be distinguished in the dynamic adaptation of

behaviors. Note that procrastination in this figure is pictured as separate from this cycle, because authors consider procrastination as an intention – implementation gap, rather than part of a planning cycle. In the cycle, feedback mechanisms allow adaptation: in each phase, a continuation or change of the behavior may be considered, depending on how well the outcomes are achieved. In each phase, strategies can be used to achieve outcomes. Examples of strategies are planning, heuristics for decision making, or combining actions to increase efficiency. Achieving the outcomes implies an increase in the control of time, which would lead to less effort needed and parallel to this, less stress, as it is less likely that things may go wrong and that they are actually achieved on time.

In Figure 1, the boxes surrounding the dynamic cycle are based upon Burt, Weststrate, Brown, and Champion's (2010) model of TM. It contains antecedents and moderators of TM, particularly those present in the organizational context. The model assumes a person-environment fit approach to TM, where characteristics of the environment necessitate certain behaviors or vice versa (cf. Greenberg, 2002 who compared emergency nurses to librarians on time urgency). In the following, I will address the antecedents and the moderators, but first I consider TM in relation to outcomes: does it lead to less stress and higher performance, as it claims?

Effects of Time Management

Many different behaviors and techniques have been subsumed under TM. Claessens, Van Eerde, Rutte, and Roe (2007) defined time management as “behaviors that aim at achieving an effective use of time while performing certain goal-directed activities” (p. 36). Thus, TM is a somewhat broader concept than planning. Behaviors under the heading of TM include the increased awareness of time use, goal setting, prioritizing, planning, monitoring, and organizing. The techniques and tools used in TM aim at making smart decisions on how

to allocate time wisely, that is, to spend as little time as possible on unimportant tasks and to spend the time thus gained on important tasks. Also, an increased awareness of how time is wasted is encouraged, and how certain activities can be combined within the same time frame. Some tools used in TM are to-do lists (see Claessens, Van Eerde, Rutte, & Roe, 2010; Grawitch, Maloney, Barber, & Yost, 2011); working uninterrupted for some time, a so-called quiet hour (Käser, Fischbacher, & König, 2013; König, Kleinmann, & Höhmann, 2013); all types of reminders; and organizing the environment for optimal performance, including archiving and e-mail management (Huang, Lin, & Lin, 2011).

Claessens et al.'s (2007) review provided an overview of studies that assessed time management as behavior that differs between individuals, and focused on the relation of TM and outcomes, such as reduced stress, feelings of control, and increased performance.

Most studies on TM provide evidence for a positive relation between TM and wellbeing, being organized, and feelings of control (e.g., Chang & Nguyen, 2011). An experiment in which students were trained in TM for two hours (Häfner, Stock, Pinneker, & Ströhle, 2013) showed that stress did not increase over the semester, and control of time increased, whereas the students in the control group showed an increased level of stress and no change in control of time. This result is in accordance with the results of a meta-analysis on experimental stress-reduction studies (Richardson & Rothstein, 2008). Cognitive-behavioral types of interventions, such as TM, had considerably higher effect sizes than other types of interventions, such as relaxation interventions.

However, the direct effects of TM on work performance could not always be demonstrated. Despite the popularity of TM, only a handful of studies have actually assessed the relation between TM and work performance (cf. Rapp, Bachrach, & Rapp, 2013). Some of these studies included objective performance (Hoff Macan, 1994), more specifically, sales

performance (Barling, Cheung, & Kelloway, 1996; Rapp et al., 2013); others included self-rated performance (Claessens, Van Eerde, Rutte, & Roe, 2004; Nonis, Fenner, & Sager, 2011). Some studies were (quasi-) experimental in design. These have used supervisor ratings of employees attending TM training (Häfner & Stock, 2010; Macan, 1996; Orpen, 1994; Slaven & Totterdell, 1993; Woolfolk & Woolfolk, 1986), or made use of self-rated performance (King, Winett & Lovett, 1986; Van Eerde, 2003; Woolfolk & Woolfolk 1986). In most of the studies, self-reported performance was related to TM, but only one of these studies could demonstrate performance improvements detected by others (Orpen, 1994). The strongest test, an experiment, in which Häfner and Stock (2010) compared participants of a one-day TM training with a control group, controlling for workload, did not show an improvement in performance (supervisor ratings, time spent on an important task). The training helped to decrease stress and to increase feelings of control, however.

TM affected outcomes that were more specific, such as handling email. Huang, Lin, and Lin (2011) conducted a quasi-experiment using a 3-hours instruction on the TM of e-mail in the experimental condition. Major functions of e-mail were covered: filtering and searching, folder management, archiving, address book management, schedule management, and message management. The participants in the experimental condition spent less time on email after the instruction. Also, their self-efficacy and feelings of control increased.

Thus, overall, the studies showed that perceived control improved, and TM training may benefit performance in the longer term by means of stress reduction, but a direct effect of TM on work performance was not demonstrated in the studies. This would seem to be in contradiction to the positive effects of planning at work, for example in entrepreneurship (Gielnik, Frese, & Stark, this volume) or when performing complex tasks (Mumford, Mecca & Watts, this volume). However, it would be consistent with the idea that planning and TM

strategies can only be of additional value, in interaction with motivation and goals. In other words, both goal intentions (motivation) and implementation intentions (planning) are needed, in interaction, to affect performance (Gollwitzer, 1999). In the following, TM will be considered as a variable that influences performance in interaction with other variables.

Time Management: a Skill?

From a resource allocation theory perspective, TM as a skill would help people to perform better because resources needed for high performance are allocated to those activities that help to deliver the high performance, rather than allocating them to activities at work that do not lead to such output. Within this perspective, TM skills moderate the relation between motivation and performance. Barling, Cheung, and Kelloway (1996) conducted a study on high versus average performers in car sales. Years of sales and achievement striving were direct predictors of sales. Additionally, the interaction between achievement striving and daily planning was predictive of sales. Interestingly, while it may be expected that the interaction with long term planning would be beneficial too, the results did not show this. More recent research (Gielnik et al., in press), however, clearly demonstrated the interaction between intentions and planning. Also, Rapp, Bachrach, and Rapp (2013) showed that TM skills moderate the relation between Organizational Citizenship Behavior (OCB), - specifically helping others at work - and work performance. Those who had high TM skills benefitted from helping others over time, whereas those who had low TM skills, an inverted U-relationship was found between OCB and performance: both low and high helping behavior detracted from performance (call activity) whereas an intermediate level of helping was best for those with low TM skills. Peeters and Rutte (2005) also established that TM was a moderator between job demands and emotional exhaustion: those teachers who had high demands and low control and who engaged in TM felt less exhausted than those who used

less TM. TM skills were also found to moderate between boredom and distraction (Van der Heijden, Gielis AH., Schepers, & Nijssen, 2012), such that TM helped people to remain focused even though they were bored. Sitzmann and Johnson (2012) showed in their experiment on self-regulated learning that planning was helpful for learning following a training, and that attrition from the training was diminished. However, planning in combination with another intervention that targeted self-regulatory processes that occur subsequent to planning such as monitoring, concentration, and learning strategies, was even more effective. They concluded that a dynamic perspective helps planning: not only making a plan, but also keeping the plan alive as time progresses.

Thus, TM has been established as a moderating factor of importance to performance. However, there may be doubt insofar TM is actually a skill, or rather a stable personality factor. Many of the research designs do not allow to make this distinction. Macan (1994) showed that there was no difference in TM behaviors between those who had gone to TM training and those who did not. Conscientiousness incorporates TM, as it includes organization and discipline. Thus, it may be worthwhile to find a way to distinguish personality from skill, for example, in terms of temperament and knowledge applied, in future research on TM.

Claessens et al.'s review also concluded that still much was unknown about "how people plan and prioritize their work activities, whether and how they perform their planned actions, and how they implement time management techniques" (2007, pp. 270-271). It may be relevant to devote more attention to what the techniques mean to people. For example, an item in a questionnaire (cf. Paul, Baker, & Cochran, 2012) "I make a list of things to do every day", is this a sign of good time management? Or is it a list with the same things on it every day? Or is it a list that serves to get things off one's mind and not to be bothered about? (cf.

Masicampo & Baumeister, 2011). TM may be criticized for its emphasis on tools, as the planning process may also be seen as behavior that does not require the use of specific tools, but of cognitive processes. The mental simulation of actions, specifying the sub-steps and operational details leading to goal accomplishment, may not always be explicit (Mumford et al., this volume).

In an experimental study (Fernandes & Lynch, 2012) those who were low on propensity to plan actually delayed tasks when they were instructed to make reminders for these tasks. Once the reminders came up, they did not engage in tasks they were reminded of. If, however they were instructed to elaborate on the reminder and to decompose it into different subtasks, they were more likely to engage in the reminded behavior.

Also, Townsend and Liu (2012) established this differential effect: for those who considered themselves poor planners, making a planning actually led them to engage less in these behaviors (spending, eating a snack) than those who did not plan. In these experiments, considering a concrete plan for goal implementation created emotional distress, thereby undermining their motivation for self-regulation. The last two studies appear to contradict the findings of other studies on planning. The difference appears to lie in the extent to which a person is confident and has the self-regulatory strength to actually implement the planning. Another explanation that Buehler and colleagues (this volume) report may be found in the type of task. In so-called “open” tasks in which assignments or other types of tasks may be distributed over time rather than in one session, actual completion times were not affected by planning. In the following, I extend the overview from TM of certain tasks to the wider context of an organization.

Time management and context

One of the issues that Claessens et al. (2007) addressed in their review, was that TM cannot be separated from the context in which it takes place. Burt et al. (2010) incorporated variables relevant to the context into their TM-model. Figure 1 also displays these variables, i.e., time demands, autonomy, and support as moderators of the effects that TM may have on outcomes.

Time demands. With regard to time demands, not all jobs may require planning. Service-oriented or highly standardized jobs may require mostly reactions, rather than planning and evaluation. Also, the assumption that persons are allowed quiet time, or at least some time undisturbed for tasks that need concentration, can be called into question given the work on work fragmentation that only leaves time for individual work in slots of a few minutes (e.g., Tengblad, 2006). Frequent interruptions by others can create vicious cycles of time pressure (Perlow, 1999) for example, for spontaneous meetings (Rogelberg, Leach, Warr, & Burnfield, 2006). Also, technological advances and working on the internet may make uninterrupted work more difficult. Research on resisting the temptation to be distracted showed that particularly in the work setting, much can be gained. Respondents indicated that particularly (social) media was highly distracting and most difficult not to attend to (Hofmann, Baumeister, Förster, & Vohs, 2012). Thus, it is important to consider where TM takes place and to what extent the time demands of the task actually allow the person to self-regulate and gain control.

Autonomy. Not every employee can delegate tasks, for example, as is assumed in the original approach to TM for executives. The autonomy for personal TM allowed by a supervisor, or “supervisor-related time control”, defined as “the perceived level of time control as a result of the synchronization of employees’ own rhythms with demands and requests from supervisors” was also examined in an Asian context (Chen, Zhang, Leung, &

Zhou, 2010, p. 183). Particularly in cultural settings that do not allow autonomous decisions even when the work is complex, and where a paternalistic style of leadership may be used, this appears to be highly relevant. The measurement scale assesses the perceived lack of time control caused by supervisors' disruption and uses the reverse score to indicate control of time. Understandably, the scale was related to job satisfaction, and the relation between control of time and job satisfaction was found to be moderated by justice perceptions.

Summarizing, autonomy is important to consider; people may not be given the discretion to decide on their own actions to increase effectiveness.

Support. Does an organization provide the conditions in which employees can actually manage their time well? Is there sufficient structure and clarity to act upon priorities? And how do others react to individual TM behaviors? Peers may view TM as socially unacceptable when they are confronted with messages from individuals managing their time, such as “do not disturb” or “say no to low priority tasks”. Interestingly, lists have appeared that provide strategies to decline requests that would diminish scholarship productivity while maintaining a good relationship (Chase et al., 2013). Examples of these strategies are: do not say yes to a request unless you have a clear view of its priority; diminish your role; plan it at a later moment; or negotiate on what the person will do for you in return. People appear to have problems with this tradeoff between individual TM and social expectations. They would like to do both to please everyone concerned, but a tradeoff decision needs to be made.

Summarizing, support is a precondition to manage time. Even if an individual attempts to manage time it will impossible when an organization has a climate that is not supportive to TM because it does not provide opportunities for shielding the time for focused work of individuals.

Burt et al. (2010) developed a measurement instrument of factors deemed to be supportive to TM: supervision, peers, task structure, support for TM practices, and time values in the organization. Of these five factors, the supervisory role was most highly (negatively) related to stress, and support for TM in general was related most strongly (negatively) to turnover intentions. This supervisory role in relation to time was also investigated in two recent studies (Gevers & Demerouti, 2013; Mohammed & Nadkarni, 2011). The first study showed that reminders of supervisors may be useful for some employees but may actually be superfluous for others. The second showed that strong temporal leadership is positively related to performance, especially when teams are diverse in their styles in working towards deadlines.

As this overview shows, there are many dimensions to consider when studying TM. Within a self-regulatory framework, individual differences and context matter. Recent research has addressed these issues in more detail, but much is still unknown. The self-management of distractions at work will become an issue that needs more attention, in light of the growing use of the internet at work. In addition, the wider context that incorporates socio-cultural factors (Levine, 2005; White, Valk, & Dialmy, 2011) play a role in TM. Overall, the context may play a larger role than TM would state, as it focuses on the individual; not necessarily on the social and organizational context.

In the next section, I will discuss TM in relation to procrastination, starting with what procrastination entails.

Procrastination

Van Eerde (2000, p. 375) defined procrastination as the delay due to “the avoidance of the implementation of an intention”. Mostly, the avoidance concerns an aversive task, or at least something less attractive than an alternative that can be acted upon. This delay is often

seen as irrational. Why would anyone delay something that they should do and do something less important instead? Clearly this behavior has a moral connotation, associated with the idea that only lazy or unreliable persons engage in this behavior. In most contexts, it is not considered a serious offense, but there are many jokes about the weakness of a person who procrastinates. Something that looks appealing in the future does not always look that way once it is in the present. Thus, procrastination can be seen as what has been termed preference reversal or time discounting within behavioral economics (cf. Steel & König, 2006). The aversiveness of the postponed action may be highly personal. Examples range from doing a difficult and effortful piece of work to calling a friend or buying a present. Why do people engage in this irrational behavior? The research suggests that avoidance serves a function: a temporary relief from the aversive task. In the short term, it provides the distraction, relief, perhaps also relaxation, and it enhances well-being, but in the longer term, delay may cause problems (Tice & Baumeister, 1997). This distraction is often something effortless or relaxing, something that may be easily interrupted, supposedly to resume the avoided task soon, even though this interval may be stretched for a very long time (Sabini & Silver, 1982). In this light, the omnipresence of quick fun distraction on the internet makes distraction much easier than before. The avoidance leads to delay and this delay may be dysfunctional. Whether delay actually results in negative consequences may depend on the nature of the postponed action, and the reactions of others, for example, whether it affects meeting a deadline, or whether it influences the perception of how dependable someone is. For many, procrastination is associated with internal consequences: guilt, shame, anxiety, or stress in general, possibly leading to psychosomatic complaints. Not doing something that you should do is often self-defeating, and the moral connotation of being like this may be an important

part of the experience. People are often disappointed in themselves when they have postponed an obligation towards themselves or others.

The definition of procrastination has been debated by different authors. The least controversial in the definition is that a person delays. Also, not much discussion involves the voluntary nature: nobody forces a procrastinator to delay. Procrastinators often have enough possibilities not to delay, yet they do. This is seen as irrational as people even may delay up to the point of experiencing discomfort. Should this discomfort be incorporated into the definition? Another issue in the debate is the intentionality: do procrastinators really intend to delay, or is it something that happens to them without intending to do so? To what extent do they feel control over the delay?

Procrastination is most often studied as a trait or a disposition. Trait (or chronic) procrastination is considered the tendency to delay intended actions. This tendency appears to be stable, and some personality traits, such as conscientiousness, are highly (negatively) related to procrastination. Procrastination may also be seen as a state or a process. A definition of this phenomenon is complicated due to its subjective nature; what may seem delay to one person may be right on time to someone else. It can only be defined depending on the intention of a person. If a person plans or intends a delay, it is not procrastination but may be referred to as strategic delay (cf. Klingsieck, 2013).

Studying procrastination as a trait has the disadvantage that the process by which behavior may be changed may not be apparent (cf. Van Eerde, 2000). A dynamic within-person approach takes into account that everyone may procrastinate yet also leaves room for the idea that some procrastinate more than others. When it is considered a process, the avoidance that can be highly personal may become more easily identified – people differ in

what they find aversive. In the following, I will provide an overview of the some important issues in the research on procrastination.

Overview of the research field

I will discuss reasons and antecedents, incidence, theoretical notions, and measurement issues, and finally I focus more closely on procrastination in work settings.

It is important to know why people postpone actions. It may be debated whether self-attributed reasons are meaningful, as they may be rationalizations of the behavior. That is why some argue that it is better to measure procrastination and other constructs separately and then establish what the relation is between them without asking them directly for the reasons. That is why I present the reasons people give for their procrastination separately from the antecedents.

Reasons. Students who delay their academic work have been researched in quite some detail. Grunschel, Patrzek, and Fries (2013a) found four distinct types based upon an analysis of fourteen self-attributed reasons, including the lack of time management. They termed these types inconspicuous, successful pressure-seeking, worried/anxious, and discontented with studies. Only the last two types would be considered procrastinators, as the first two types use purposeful delay, with the second type adding stimulation by creating pressure. The third type clearly shows that they delay is paired with negative emotions, and has low confidence and high perfectionism, and the fourth indicates an unmotivated and dissatisfied type, without anxiety. At any rate, the students who indicated they engaged in purposeful delay, inconspicuous or stimulated by pressure, obtained better grades, felt more satisfied, did not feel a need to change their study behaviors, and felt less strain than the other two types. Particularly, the inconspicuous type was found to be more conscientious than the other types. This shows that delay should be carefully examined and cannot be called procrastination if no

further assessment is made of the reasons for delay. There is not much empirical support for so-called active procrastination (Chu & Choi, 2005) that might indicate that procrastination may be functional. As previously mentioned, if delay is strategic and planned, it might be better not to call it procrastination.

Antecedents. In meta-analyses on procrastination (Steel, 2007; Van Eerde, 2003a), the relations between procrastination and its antecedents and outcomes have been combined. Most effect sizes were retrieved from cross-sectional studies, and it may be better to think of a nomological network of procrastination in relation to several concepts, because empirically it is not clear whether procrastination is an antecedent, co-occurring phenomenon, or consequence. One of the surprising findings was that fear of failure and perfectionism were not related, or only very little, to procrastination. However, when people are asked why they procrastinate they often refer to fear of failure or perfectionism. How may the differences be reconciled? Most likely because in the meta-analyses all studies are combined. An important moderator might explain why there is no overall effect: the relation between fear of failure and procrastination for students with high competence is negative and for those low on competence, the relation is positive, resulting in a null effect when studies are combined (Hagbin, McCaffrey, & Pychyl, 2012). The same goes for the relation between perfectionism and procrastination; perfectionism can be maladaptive; at least in clinical practice, procrastinators appear to struggle with the idea that they need to be perfect (Pychyl & Flett, 2012). However, perfectionism can also lead to exerting more effort, and achieving more because of it. Again, combining all studies on perfectionism is likely to cause a null effect when no distinction is made. These findings show that it is important to consider that procrastination indeed is often paired with fear of failure and perfectionism, but it does not

automatically imply that everyone who is a perfectionist, or who has fear of failure, actually procrastinates.

Incidence. Many articles state that procrastination is widespread, problematic, and on the increase (e.g., Steel & Ferrari, 2013). However, a closer look at the numbers that would support this makes them susceptible to different interpretations. First, looking at students, incidence rates of 70 to 95% are mentioned. The percentages come from surveys. The average score lies around 3 on a 5-point scale, which would mean a neutral score with a normal distribution. One of the issues in this type of research is to consider what the range of normal behavior is. When is someone considered a chronic procrastinator, and when is the behavior dysfunctional? Although it is clear that the extreme cases are clearly dysfunctional in terms of mental and physical wellbeing (Steel & Ferrari, 2013), no clear answers arise from the research regarding the cutoff values that need to be considered.

Theory. The field of procrastination research has diversified over the last 40 years. Many different perspectives have been taken, mainly based upon traits, but also motivational / volitional, clinical, and situational perspectives (cf. Klingsieck, 2013). These perspectives have not been clearly separated, and they overlap in many instances. It is important to acknowledge that the different perspectives complement rather than contradict each other.

Some recent research also addressed the possibility that there are neurophysiological roots of procrastination, examining executive functions (Rabin, Fogel, & Nutter-Upham, 2011). However, two aspects of the study make the results inconclusive: first, the functioning is self-reported rather than tested, and second, some of these functions overlap with conscientiousness. For example, conscientiousness overrode the significance of some of the components of executive functioning, such as the ability to shift from one situation or activity to another and to modulate emotional responses.

Measurement. Several instruments have been developed to measure procrastination, and sometimes distinctions were made between decisional or behavioral procrastination, or avoidance or arousal procrastination (see for an overview of scales Negra & Mzoughi, 2012). Steel (2010) combined the items from several procrastination scales in a factor analysis. This study supported a one-factor model of procrastination rather than of different types. The analysis revealed that many items in longer scales actually do not measure procrastination. This scale is termed the pure procrastination scale and it contains 12 items. An alternative is to measure avoidance reactions to a deadline using eight items, also a one-factor scale without any redundant items (Van Eerde, 2003).

Procrastination in work settings. Research on procrastination in work settings is relatively rare. Nguyen, Steel, and Ferrari (2013) conducted a study using a very large internet sample that assessed procrastination at work. They concluded, among others, that men procrastinate more than women, procrastination is associated with unemployment, part-time work, shorter employment duration and lower salaries, and overall a bleak picture is painted of variables associated with the behavior. Regarding the types of jobs, procrastination appears to be less prevalent in investigative and enterprising professions. The value of the study lies in the large scale of the study. It is nevertheless difficult to interpret the results because in such an epidemiological approach, alternative explanations may be given based upon omitted variables, such as depression or physical health.

Notwithstanding the scarcity of research on procrastination at work, it may have more negative consequences than it has for students, as not only the procrastinator may be affected by the behavior, but also others who are in some way dependent upon him or her. However, this has only not been addressed in about four studies, as far as could be established.

Procrastination can be rather well observed by others. This was demonstrated in a study among Indian skilled men ($n = 200$); supervisors were asked to qualify workers as a procrastinator or non-procrastinator, and these scores corresponded well with self-ratings (Sharma, 1997) and also Van Eerde (2003b) showed that peers confirm their self-ratings. Ferrari (1992) showed that procrastinators judged scenarios of a coworker procrastinating harsher than non-procrastinators. They attributed the behavior of the person in the scenario more internally and were more likely to agree with the statement that this person should be fired than non-procrastinators. Procrastinators were also harsh in rating others who delay academic or tasks in daily life (Ferrari & Patel, 2004), possibly reflecting their own dislike for the behavior.

In studying procrastination at work, it may be useful to consider procrastination in terms of “empty labor”, “the part of our working hours that we spend on other things than work” (Paulsen, 2013) depending on whether the distractions that replace the intended actions are work-related or not. Paulsen developed a tentative typology based upon the employee's sense of work obligation and how much work the job actually entails: “*soldiering* is the active withdrawal of the employee despite high potential output; *slacking* is a combination of little to do and weak sense of work obligation in the employee; *coping* is when the employee wants to perform and there is much to do, but when empty labor is used as stress relief; *enduring* is when the employee is motivated to work, but work tasks are lacking.” (p.1). Procrastination at work could be occurring in the first three instances. D’Abate and Eddy (2007) studied this under the term “presenteeism”, being at work but working below capacity, and found that personal business on the job, both on family matters and on leisure activities, is associated with procrastination. Personal business on the job was not associated with being dissatisfied, being uncommitted, or intending to leave the organization, nor was it related to self-reported

measures of performance or efficiency, only to procrastination. Also, Wan, Downey, and Stough (2014) established this relation. Their findings were in contrast to a study on email-use by Phillips and Reddie (2007). These authors found that procrastination was not a predictor of personal email use, only of work-related email usage. As mentioned before, studies on procrastination in a work setting are relatively rare, but it is expected that distraction and self-regulation will become more urgent topics to study in the near future.

Overcoming procrastination

Many people use some kind of strategy to help them through the difficulty of initiating necessary but unpleasant activities, for example, cleaning a toilet or reading a boring text to prepare for a meeting. Sokolowski (1994) asked respondents what their strategies were. He distinguished the following strategies: making specific plans; increasing time pressure; thinking of positive consequences; thinking of negative consequences of not doing it; removing distractions; suppress negative emotions; anticipating goal attainment and focusing on the responsibility of having to do the activity. These categories are not definitive, but they appear in many articles that address overcoming procrastination. There are large individual differences in procrastination and the ability to overcome it (Steel, 2007; Van Eerde, 2003a). At the same time, there are many who wish they could change their procrastination habit. Many popular books are devoted to this wish, and there is a clear demand for some type of solution. However, in terms of an evidence base on what is actually helpful, the research does not provide a clear answer. There are at least three explanations why procrastination is hard to change: 1) there are strong indications that it is part of generalized behavior patterns and it can be considered a trait; 2) avoidance may be experienced as “addictive”, and the distractions to engage in may be too tempting. As such, avoidance learning may take place, leading to

vicious cycles over time; and 3) there are emotional barriers to deal with that often cannot be tackled because the person does not feel confident enough.

This section reviews some of the studies on interventions to reduce procrastination. Schouwenburg (2004, chapter 14) provides an overview of the three components used in interventions aimed at helping students overcoming procrastination: 1) Training self-regulatory skills; 2) building emotional strength; and 3) using social support to sustain desirable behavior.

First, training self-regulatory skills to reduce the gap between intentions and behavior, mainly planning, but also other strategies, overlapping with TM. Similar to what was stated in the chapter on planning and entrepreneurship (Gielik, Frese & Stark, this volume), planning may be problematic because there is a lack of knowledge about the future. Procrastinators seem to overestimate their control of their implementation of their plans. Similar to what might be done in overcoming the planning fallacy (Buehler, this volume) the strategies include creating an overview of tasks, setting realistic goals, subdividing and specifying large and vaguely formulated goals, specifying deadlines for these goals, allocating time, training to overcome tempting distractions, monitoring progress and stimulus control techniques that help to ensure that the environment is distraction-free.

Second, and different from TM, procrastination interventions are focused on ways to enhance self-efficacy, for example, building on principles in rational-emotive behavioral therapy to emphasize that thoughts, behaviors, and feelings are interrelated, so that changing thoughts and feelings may lead to changing the behavior. Emphasis is placed on replacing irrational beliefs by more realistic and positive thoughts.

Third, the support of peers is used to help to recognize, support, or disapprove of certain behaviors. Overall, the three components could be seen as TM with extras: The interventions

do not only include the cognitive, behavioral, and contextual structuring that helps in organizing, but also devote attention to emotional aspects of procrastination and to invoking social support to sustain efforts in overcoming it. Most interventions have addressed academic and health-related behaviors. In the following, the interventions will be reviewed according to the three components mentioned above: cognitive-motivational structuring, building emotional strength, and invoking social support.

Cognitive-motivational structuring

Planning is a cognitive-motivational intervention. Making goals more concrete by elaborating on them with more details helps to implement them, as action theory asserts (Frese & Zapf, 1994). Procrastination researchers do not call their interventions TM, and might be more inclined to call them self-regulation, even though the content overlaps. Often, some kind of cognitive restructuring of irrational beliefs may be included in procrastination interventions. In the following, however, I will specifically consider the parts that deal with planning. These include TM, implementation intentions, and additional strategies as forms of planning conducive to the reduction of procrastination.

Time management. Van Eerde (2003b) assessed procrastination after a commercial TM training and found a significant decrease of procrastination compared to a waiting group control group. Renn, Allen, and Huning (2011) investigated procrastination as a self-defeating strategy within the broader term self-management. These authors tested a model in which the relation between self-defeating behaviors (inability to delay gratification, procrastination and emotional self-absorption) and self-management (goal setting, monitoring and operating) was investigated. Self-defeating behaviors were proposed as mediators in the relation between personality traits (neuroticism and conscientiousness) and self-management. They concluded that the relationship between neuroticism and self-management was accounted for by the

inability to delay gratification and emotional absorption. On the other hand, conscientiousness and the self-management practices were partially accounted for by self-defeating behaviors; conscientiousness was also directly related to operating.

Green and Skinner (2005) provide some indication that procrastination decreased to a lesser extent than the other behaviors predicted to decrease after TM training, such as learning not to forget things or email management.

Michinov, Brunot, Le Bohec, Juhel, and Delaval (2011) also combined TM and procrastination in their study on online learning. Their analyses show that motivation was high at the start of the project for both low and high procrastinators. However, this level dropped off during the project for high procrastinators whereas it remained relatively high for the low procrastinators. Only right before the end of the project, high procrastinators indicated they were motivated again. Also, the effect of procrastination on performance was partly mediated by participation on online forums. Yet, those scoring high on procrastination participated less in online forums than those who scored low on it.

Another example is a detailed case study of seven students going through several sessions of cognitive behavioral coaching (Karas & Spada, 2009). The coaching program may be considered an intensive one-on-one TM training and also included some behavioral restructuring exercises to deal with irrational beliefs. It consisted of: 1. enhancing motivation to change; 2. goal setting; 3. monitoring progress; 4. time management; 5. disputing unrealistic beliefs; and 6. relapse prevention. It was effective in reducing procrastination after six months. Thus, only a few studies combined TM and procrastination. In these, TM helps to decrease procrastination.

Implementation intentions. Here, I focus on the type of planning particularly relevant to procrastination: forming implementation intentions (Gollwitzer, 1999). From an action-

theoretical perspective, a motivational phase results in the intention to enact behaviors, but a volitional phase is needed to implement them, and so-called action plans, or implementation intentions are needed. Often people have good intentions but fail to act upon them, either because the required behavior is not initiated or because people are unable to maintain the required behavior to reach a goal. By formulating behavior as specific as possible (if x happens, I will do y) it is more likely that the behavior will be performed (Thürmer, Wieber, & Gollwitzer, this volume). Although some moderators of this effect seem to be present (e.g., goal difficulty, Prestwich & Kellar, 2010) the research shows positive effects of implementation intentions on the implementation of many behaviors that need self-control, such as dieting and exercising. People who spontaneously form implementation intentions procrastinate less (Howell, Watson, Powell, & Buro, 2006). Also, in a study in which implementation intentions were assessed in a field study, support was found for the proposed mediating role of implementation intentions in the relation between job search intention and job search behavior (van Hooft, Born, Taris, van der Flier, & Blonk, 2005). The proposed moderating roles of action-state orientation and trait procrastination, however, were not supported. This would imply that implementation intentions are equally useful for everyone, whether they are procrastinators or not.

However, the spontaneous formation of implementation intentions may be attributed to individual differences in being organized in general and should thus be distinguished from using it as an intervention to reduce procrastination. In an experiment in which people were instructed to form implementation intentions they were much more likely to keep their appointments (71%) than people who were asked not to do so (only 17%). It could be expected that this type of action plan was even more beneficial for procrastinators, but no moderation effect was found, only a direct effect (Owens, Bowman, & Dill, 2008).

Summarizing, both studies support the idea that implementation intentions are useful for implementation, independent of one's tendency to procrastinate.

With regard to implementation intentions, some moderators have been studied that have not been applied to procrastination research. Two of them are particularly interesting: future time perspective and self-efficacy.

Future time perspective is the tendency to consider the future, rather than the past or the present (Zimbardo & Boyd, 1999). Procrastination is negatively associated with future time orientation (Ferrari & Díaz-Morales, 2007). The more people perceive their future as being constrained, the stronger becomes the relationship between planning and behavior. As such, planning seems to operate as a compensatory strategy for the lack in future time perspective (Gellert, Ziegelmann, Lippke, & Schwarzer, 2012). Similarly, plans are more likely to be implemented if people feel more self-efficacious about the behaviors needed for the implementation of a plan (Lippke, Wiedemann, Ziegelmann, Reuter, & Schwarzer, 2009).

This would imply that somehow broadening the future time perspective and the confidence of procrastinators would help them to decrease the delay. And if the time perspective remains very restricted, to engage in thorough planning.

Additional planning strategies. There are many new developments in the field of action plans that have not been incorporated into procrastination research. A detailed critique and suggestions for the future of the field of action plans was presented by Sniehotta (2009). Some of his ideas are related to additional planning to implementation intentions, such as barrier-focused strategies, that involve coping plans for high-risk situations. Another important issue in relation to procrastination is that there is a need to study how plans develop in real situations versus the plans provided by researchers in many of the implementation intention studies. In other words, both the formation of spontaneous implementation

intentions and the researcher-instructed way of forming implementation intentions may have limitations. For procrastination, it would be useful to know whether it is possible to train people in using these strategies if they are not inclined to do so spontaneously.

Adriaanse et al. (2010) suggested mental contrasting as one of the strategies helpful for implementation of actions in addition to implementation intentions. Mental contrasting involves formulating a wish for a certain behavior, imagining the positive future in the event of successful behavior change versus a negative reality that stands in the way of reaching this desired future. In using mental contrasting, both the positive future and the negative reality become mentally accessible. This may help to make the right decision: choosing a positive future reality. Related to this approach, and emphasizing the dynamics over time in relation to procrastination, Krause and Freund (2013) developed a model that emphasizes the focus on the process rather than the outcomes during goal pursuit for overcoming procrastination.

Another new development is training prospective memory to reduce the steepness of time discounting and to change the meaning of a future action to learn. These memory training sessions involved intensive training of memorizing digits and words. The (yoked) control group went through the same training, except for having to use their working memory. So far, these interventions have been successful in changing drug addicts' perceptions and to reduce their drug habit considerably (Bickel, Yi, Landes, Hill, & Baxter, 2011; Radu, Yi, Bickel, Gross, & McClure, 2011). It may be worthwhile to attempt to use this training among procrastinators.

Overall, planning is a useful strategy to overcome procrastination because planning helps to implement actions, but it is not yet clear how people can be encouraged to plan themselves in real life if they do not do so spontaneously – after all, time discounting may also be considered a trait (Odum, 2011). Automated tools that help planning and that provide

cues to the person over time to sustain self-control (Alias, 2012; Kamphorst, 2011) may help these persons in particular. Many interventions to overcome procrastination have targeted other behaviors than planning, and in the following, the emphasis is on the emotional side of procrastination.

Building emotional strength

As described earlier, TM helps to increase feelings of control and self-efficacy. Studies on procrastination show similar results. In an experimental setup with measurements over time (Schmitz & Wiese, 2006), a self-regulation training for self-regulated learning was evaluated. The training involved goal setting, planning and time-management, and volitional strategies, such as avoidance of procrastination, attention control, self-motivation, and dealing with distraction. Using a diary as a measurement tool, self-efficacy went up and procrastination went down. Another study on self-regulated learning with a longitudinal design showed that after goal achievement during a semester, self-efficacy increased and procrastination decreased. The authors of this study refer to the time paths as vicious and virtuous cycles (Wäschle, Allgaier, Lachner, Fink, & Nückles, 2014).

Some interventions to overcome procrastination target self-efficacy and emotional strength directly. Increasing confidence to implement actions and reducing anxiety that is associated with them may also be helpful in overcoming procrastination. An example of such a study (Ramsay, 2002, p. 89) was using a 10-minute rule to stay on a task, even if the task was experienced as overwhelming. This is a way to get started on the task and to gain experience, rather than making a decision to avoid the task because of negative thoughts or images of what might go wrong. After completing the initial commitment, the participant is then encouraged to reassess the task with regard to anticipations of it that he or she had beforehand. The exercise can be varied from a time increment to a certain number of tasks

that a person can commit to, such as to listen to five voice mails. Another intervention that looks similar to this works on the basis of time restriction that leads to successful implementation and as such to higher self-efficacy – although it may also be categorized as a planning intervention. Participants are instructed to work no more than the time planned, starting with small time intervals. In sessions with others, feedback is provided, and only if the planning has been met, the person is allowed to spend more time on the subsequent intended tasks (Höcker, Engberding, Haferkamp, & Rist, 2012). The authors claim that this is the most successful intervention for procrastination so far. Perhaps the intervention leads to successful implementation because it is based upon reference forecasting (see Buehler, this volume); the planning is based upon the success of previous experiences – that were very limited so far, rather than upon an optimistic view of the future. It would be interesting to find out whether the severe cases benefit as much as the less severe, as the average of the sample had procrastination scores lower than 3 on a 5-point-scale to start with.

Besides enhancing self-efficacy, some interventions target the reduction of stress, and learning how to cope with stress related to difficult or aversive tasks. A strategy that appears to be helpful in reducing procrastination is to be more forgiving about one's own behavior (Wohl, Pychyl, & Bennett, 2010). The effect was found to be mediated by the reduction of negative affect. Thus, although this sounds contradictory, being nice about one's own procrastination, rather than harsh, may actually help. Similarly, self-compassion (Sirois, 2013) and mindfulness (Sirois & Tosti, 2012) mediated the relation between procrastination and stress. These studies demonstrate that at least part of the stress caused by procrastination is related to being strict to oneself and may perhaps be alleviated by learning more self-compassion. Mindfulness training might be another way to deal with the difficulties experienced in procrastination. Focusing on the here and now, as is instructed in mindfulness

training, would appear to be contradictory to planning and focusing on a future goal.

However, both appear to be useful in the case of procrastination. Distancing emotionally of what is unpleasant and replacing avoidance by accepting the here and now of may be the part of mindfulness that helps (Howell & Buro, 2011). Perhaps it is the balance between living in the here and now and a future focus is optimal. A web-based mindfulness training of 13 10-minute sessions over a period of four weeks also found that the intervention reduced stress via increased mindfulness and decreased procrastination (Drozd, Raeder, Kraft, & Bjørkli, 2013).

An example of a more clinical approach, or therapeutic change, to overcome procrastination (Rice, Neimeyer & Taylor, 2011) is coherence therapy, designed for helping clients through deeper understanding of the emotional truth of a symptom. The idea behind this therapy is that it is good to follow the procrastinator's reasoning, and not to counteract the procrastination. The client is encouraged to reach a more complete understanding of the symptom through a process of experiential discovery, and to discover which adaptive function the behavior fulfills. The study evaluated coherence therapy in comparison to an active bibliotherapy intervention based upon *The Now Habit* by Fiore (2007) as a self-help instruction. Fiori reintroduced Burka and Yuen's (1983) "unscheduling", that is, first eliminating time slots in a schedule that are busy, to see what time is left, rather than to plan all activities as consuming time. The outcomes of the study revealed that neither coherence therapy, in which the number of sessions with a therapist varied according to the needs of the patient nor reading the self-help book helped to reduce procrastination.

Thus, building emotional strength and self-efficacy appears to be useful to deal with the stressful aspects of procrastination, for example, using experiential learning and time restriction, but as mentioned before, planning and TM also help to reduce stress . Also, being compassionate to oneself and mindful appeared to be helpful. In contrast, coherence therapy

was not as useful as expected. In the following, the support from peers in dealing with procrastination is examined.

Peer support

Peer groups can be very influential in many different areas of life, and the same appears to be the case for the treatment of procrastination. Tuckman (2007) established in an experiment among distance learning students that procrastinators specifically benefitted from what he termed “motivational scaffolding”. This intervention resembles a group-TM intervention. It uses online chats and a study skills support group, in which students serve as another student’s supporter. The supporter’s task is to help the student manage his/her time by reviewing weekly to-do checklists prepared by the partner and comparing them to the partner’s report of subsequent task accomplishment (i.e., successes and failures). This approach can be compared to having a person help the planning with an outside perspective (see Buehler, this volume). The checklists contain weekly study tasks, broken down into small steps, and listed as specific and measurable, concrete activities. After discussing the prior week’s accomplishments, the checklist for the coming week is discussed. The students send their checklists in and these are discussed in larger groups. Overall, increased monitoring by others had an effect on procrastination, and the grades of the procrastinators increased. Interestingly, those who were low on procrastination did not profit from the intervention in terms of better grades. The study points out that it may be useful to consider type-specific interventions for those who find they need to change their dilatory behaviors.

This was also stated in a recent overview of procrastination (Klingsieck, 2013, p. 29): “...to meet the multifaceted phenomenon of procrastination, procrastination research needs to develop custom-tailored interventions.” This would be wise to keep in mind for the future. Peer support, tackling irrational cognitions, and improving planning and self-regulation skills

would appear to be useful for all procrastinators. Dealing with negative emotions may only be needed for the worried/anxious types, and they would need more help in building self-efficacy. For those who procrastinate because of discontent and amotivation, interest enhancement interventions may be used, such as reconsidering activities in light of goals, exploring own interests, as well as finding other ways to making activities less boring, such as creating a good atmosphere while performing them, and the support of others.

At work, other issues may of course play a role, as a disinterest in the content of a job may not always easily be solved unless a job change is possible. When it is clear that persons cannot keep their jobs when they do not meet deadlines, the external pressure may be much higher and may lead the procrastinator to function adequately. Thus, the procrastinator at work is under more social pressure than the academic procrastinator (cf. Van Eerde, 2000) and they can be found more often in constrained, rather than autonomous, jobs (Nguyen et al., 2013). Whereas some of the research in academic procrastination of students may inform that of employees, it should also be considered that managers take care of other people's TM by setting goals, deadlines, and enforcing certain procedures.

Concluding, there have been many interventions, but not all have used a research design that allows strong conclusions regarding the causality of a particular part of the intervention. Nevertheless, the more controlled studies usually show positive effects. All three types discussed appear to contribute to the reduction of procrastination.

Conclusion

Does planning help to overcome procrastination? At least, many procrastination interventions have incorporated some kind of planning and it appears to be an important precondition to overcome it. However, to answer this question in more detail, two issues need to be considered: 1) the intervention studies have not been rigorous in many cases, leaving

open alternative explanations; and 2) some interventions may not transfer to the field. That is, we do not know in detail how people procrastinate, plan, and implement as time goes by and as situations change. Some studies show that if people think of themselves as poor planners, they do not follow up on their plans (Townsend & Liu, 2012), and the plans may even lead to a lower likelihood of implementing the plan. Considering the types of jobs that procrastinators occupy, they appear to be constrained and not investigative or enterprising (Nguyen et al., 2013). This may imply that a structured context helps procrastinators to function adequately. In other words, self-initiated planning may not be needed in these jobs, and they select those jobs in which others control them to some extent.

Some types of interventions are related to planning, but do not involve setting goals and plans at such. They involve time restriction, 10-minutes time-on-task intervention, or memory training. These may be other ways to enhance cognitive structuring and they are worthwhile investigating further.

The emotional, and particularly the social-emotional, implications of procrastination are not dealt with if only planning is used as an intervention. Emotional and social issues have been neglected in TM, and the studies on procrastination show that social control, at least in student groups, is actually a very good way to help procrastinators.

The studies conducted on TM have not revealed direct positive influences on work performance. The contradiction with studies on planning may be resolved by considering the emphasis on tool-use in TM, and possibly the limited type of planning associated with it. These may be insufficient when regulating one's own behavior over time. Self-control is neglected in TM, and it is likely that a more flexible approach to planning is needed than what TM usually offers.

Future research directions

It is important that we understand how planning affects procrastination, or for that matter how TM affects performance. Is it through increased control and confidence, the reduction of stress, the organization of tasks by itself, or is it a reduction of the steepness of the discounting function, or are these all affected at the same time?

Moderators in terms of individual differences and context can be identified. In future studies, these should be carefully examined. Also, it would be useful to unravel the effects of particular variables, rather than combining them, particularly in the intervention studies. Almost any intervention used a combination of different elements and the separate effects are difficult to distinguish. Particularly in these studies, multiple measurement moments and the use of control groups would help to understand the what may help to overcome procrastination.

As can be seen from the overview, there are still many questions open regarding TM and procrastination. One of the topics that needs more attention is the lack of energy or fatigue in relation to procrastination (cf. Steel & Gröpel, 2008), highly relevant given the studies on depletion and self-regulation. Students mention mental and physical states less often as reasons for procrastination than for example motivation (Grunschel, Patrzek, & Fries, 2013b), but these states can nevertheless be important. Some research on fatigue has concluded that people tend to utilize familiar options when they are tired. They also increase demands on others; imitate others; and pursue risky options. Lost sleep might also result in using easier options, not necessarily risky, such as cyberloafing (Wagner, Barnes, Lim, & Ferris, 2012), behavior that is strongly linked to a lack of self-control (e.g., Restubog et al., 2011). The personal use of internet at work may also be used as a way to recover from fatigue, boredom, or stress (Ivarsson & Larsson, 2011). An integration of TM and workload

management strategies (cf. Barnes & Van Dyne, 2009) may be promising in managing fatigue.

Also, if the training used for drug addicts (Bickel et al., 2011; Radu et al., 2011) may be generalized to the addictive nature of temptations, prospective memory training may be part of changing attitudes towards the future and time discounting.

Is TM only a Band-Aid for chronic procrastinators? Yes, but a very important Band-Aid that serves as a precondition. If it is left out from an intervention, it is unlikely that the stress is alleviated. Even though relaxation may take place, the problems associated with procrastination will not be solved. Confidence may be built, but the disorganization and delay will remain without planning. Procrastination is an important problem in many people's lives. Planning and other interventions should be evidence-based and custom-tailored. This increases the likelihood that they help those who suffer from procrastination to overcome it.

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Figure 1

