Procrastination

When Good Things Don't Come to Those Who Wait

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Abstract. Procrastination is a well-known phenomenon that often entails negative outcomes with regard to performance and subjective well-being. In an attempt to understand the (alarming) character of procrastination, a large body of research on the causes, correlates, and consequences of procrastination has been accumulating over the last 40 years. The aim of this paper is to provide a systematic characterization of the trends in procrastination research and to suggest future directions for research and practice. The systematic characterization comprises a comparison of procrastination to functional forms of delay (referred to as strategic delay) and a presentation of the theoretical approaches to explaining procrastination. The future directions suggested pertain to the development of a differentiated understanding of procrastination and of integral interventions.

Keywords: delay, strategic delay, procrastination, academic procrastination, systematization

Procrastination – the needless delay of things one intends to do – is a phenomenon that has accompanied humankind at least since the times of Cicero (cf. Steel, 2007) and has intensively attracted researchers' interest, especially in the last four decades. It is a well-known phenomenon in everyday life. Study results point to prevalence rates as high as 20–25% in the general population (e.g., Ferrari, Díaz-Morales, O'Callaghan, Díaz, & Argumedo, 2007). The prevalence rates of academic procrastination (i.e., procrastination of study-related activities; e.g., writing a term paper, studying for an examination) among university students are considerably higher. Up to 70% of university students consider themselves procrastinators (e.g., Schouwenburg, 2004), and 50% procrastinate consistently and problematically (e.g., Day, Mensink, & O'Sullivan, 2000; Solomon & Rothblum, 1984). Students have reported that procrastination typically accounts for more than one third of their daily activities and is often carried out through sleeping, reading, or watching television (Pychyl, Lee, Thibodeau, & Blunt, 2000). Men seem to procrastinate slightly more than women, and procrastination seems to decrease with age (Steel, 2007; Steel & Ferrari, 2012). However, considering the small correlations found in these studies in light of their large sample sizes, the differences seem to be of limited informative value (cf. Ferrari, 2010).

The results of a variety of studies have suggested that procrastination is detrimental to subjective well-being. Study results have shown significant negative correlations between self-reported procrastination and health (Sirois, 2004; Sirois, Melia-Gordan, & Pychyl, 2003; Stead, Shanahan, & Neufeld, 2010; Tice & Baumeister, 1997) and between self-reported procrastination and financial well-being (Elliot, 2002; as cited in Steel, 2007). In the academic domain, studies have shown that procrastination is related to poor academic performance (Tice & Baumeister, 1997; van Eerde, 2003). Students who procrastinated were more anxious (Rothblum, Solomon, & Murakami, 1986) and stressed (Tice & Baumeister, 1997) across the entire semester, and were more agitated before a test (Lay & Schouwenburg, 1993). Compatibly, the wide variety of self-help books (e.g., Burka and Yuen, 2008; Ferrari, 2010; Steel, 2011) conveys the picture of a phenomenon that is often accompanied by distress. The resulting need for reducing procrastination (e.g., Solomon & Rothblum, 1984) is met by different kinds of intervention programs (for an overview see Schouwenburg, Lay, Pychyl, & Ferrari, 2000).

In order to fully understand the alarming character of this phenomenon, and to develop appropriate interventions, a large body of research on the causes, correlates, and consequences of procrastination has been accumulating over the last 40 years. These research endeavors have focused on the fields of social, personality, educational, clinical, and health psychology. Strikingly, the different

research endeavors have mainly developed in isolation of one another, leading to a somewhat unsystematic coexistence. Metaphorically, procrastination research can be pictured as a savage garden that has allowed its flora to sprawl everywhere (e.g., causes, correlates, consequences) within certain boundaries (e.g., student samples). In some parts of this garden, the vegetation is so thick that it is very difficult to see through (e.g., motivational approaches), whereas in others, almost no plants can be found (e.g., situational approaches). To sow new vegetation (i.e., theoretical approaches, instruments, interventions), one needs to understand the landscape of this garden. The purpose of this paper is to unfold its landscape and to develop ideas for future cultivation and harvesting.

Thus, the aim of this paper is to provide a systematic characterization of the trends in procrastination research and to suggest future directions for research and practice. The first part of the paper compares the phenomenon *procrastination* with (strategic) *delay* (i.e., prioritization) in order to eventually derive a precise definition of procrastination that is in contrast to delay. The second part unfolds a comprehensive, yet condensed, systematization of the existing theoretical approaches to procrastination. The third part formulates future directions for procrastination research and practice.

Defining Procrastination

The authors of the first book to have contributions on procrastination have stated that "a major difficulty in studying, understanding, and treating procrastination may involve variations in its subjective definitions" (Ferrari, Johnson, & McCown, 1995, p. 5). Two decades later, a commonly shared definition of procrastination still does not exist; instead, there exist a variety of different definitions that are disparately connoted. Moreover – and partly related to the circumstance surrounding the different connotations of procrastination definitions – the term procrastination is used for different phenomena of delay. Whereas some authors use the term procrastination solely for dysfunctional forms of delay (e.g., Steel, 2007), others also circumscribe positive forms of delay to this term (e.g., active procrastination; Chu & Choi, 2005). Thus, there is no agreement about what, exactly, is the phenomenon that we study, write, and speak about. However, solid theories, valid instruments, effective interventions, and precise communication concerning this phenomenon can only evolve if there exists a commonly shared understanding of procrastination. Such an understanding would settle the discussion as to whether procrastination is solely dysfunctional or whether it has functional aspects as well (cf. Chu & Choi, 2005 vs. Pychyl, 2009).

This paper intends to provide a clear distinction between procrastination and functional forms of delay (i.e., strategic delay). Based on this distinction, a definition of procrastination that can be commonly shared is suggested. To develop a basis for the distinction, I analyzed frequently cited procrastination definitions by decomposing them into their parts and then filtering the resulting various constituent parts. The following seven aspects serve as the basis for the distinction:

(a) An overt or covert act is delayed (e.g., Ferrari, 1998).
(b) The start or completion of this act is intended (e.g., Lay & Schouwenburg, 1993).
(c) The act is necessary or of personal importance (e.g., Lay, 1986).
(d) The delay is voluntary[1] and not imposed on oneself by external matters (e.g., Milgram, Mey-Tal, & Levinson, 1998).
(e) The delay is unnecessary or irrational (e.g., Lay, 1986; Steel, 2007, 2010).
(f) The delay is achieved despite being aware of its potential negative consequences. (e.g., Steel, 2007).
(g) The delay is accompanied by subjective discomfort (e.g., Ferrari, 1998; Solomon & Rothblum, 1984) or other negative consequences (e.g., Simpson & Pychyl, 2009).

The first three of these constituent parts pertain to the activity in question while the other four pertain to the character of the delay.

Table 1 presents the comparison between procrastination and strategic delay (i.e., a functional form of delay) along these parts. Both phenomena share the first four parts. The first two parts characterize mere delay and are found in both phenomena. However, in order for simple delay to become procrastination or strategic delay the intended act has to be necessary or of personal importance, and the delay has to be voluntarily. The difference between procrastination and strategic delay is then traced back to the nature of the delay itself. The delay that is unnecessary, irrational, or even harmful is what distinguishes procrastination from strategic delay. Naturally, in the case of strategic delay, one might be aware of the potential negative consequences of the delay. However, in contrast to procrastination, with strategic delay one is confident that these negative consequences will be outweighed by the positive consequences of the delay in the long run. In the case of procrastination, the delay, in fact, often entails negative consequences or is at least accompanied by subjective discomfort.

This distinction adds clarity to the discussion of the functional or dysfunctional nature of procrastination (cf. Chu & Choi, 2005; Pychyl, 2009). Procrastination is per se dysfunctional in that it implies an unnecessary delay

[1] The term "voluntary" is used in procrastination research to explicate that the delay is due to a deliberate choice of the individual. It is not, however, meant to suggest that the procrastinating individual is acting while being totally aware of and understanding his or her real motives.

Table 1. Comparing the phenomena procrastination and strategic delay along seven constituent parts of procrastination definitions

	Procrastination	Strategic delay
An overt or covert act is delayed.	×	×
The start or the completion of this act is intended.	×	×
The act is necessary or of personal importance.	×	×
The delay is voluntary and not imposed on oneself by external matters.	×	×
The delay is unnecessary or irrational.	×	
The delay is achieved despite being aware of its potential negative consequences.	×	
The delay is accompanied by subjective discomfort or other negative consequences.	×	

and negative consequences that outweigh the positive consequences of the delay. Along those lines, there is no functional form of procrastination, but there is a functional form of delay. Thus, studies that deal with functional aspects of procrastination (e.g., Chu & Choi, 2005; Schraw, Wadkins, & Olafson, 2007) actually refer to *strategic delay* (cf. Corkin, Yu, & Lindt, 2011). However, the appraisal as to whether delay is procrastination or not still depends on individual internal norms and attributions of delay (cf. Milgram, Sroloff, & Rothblum, 1988; van Eerde, 2000).

In support of the seven aspects of procrastination, research has shown that behavioral procrastination (overt acts) can be differentiated from decisional procrastination (covert acts; [a]; e.g., Milgram & Tenne, 2000), that the *intention-action gap* is the core of the procrastination phenomenon ([b]; Lay, 1986; Steel, 2007), that individuals feel they procrastinate if they delay necessary or important acts ([c]; e.g., Schraw et al., 2007), that the act of procrastination is deliberate ([d]; cf. Ferrari, 2010), that the delay in procrastination is indeed irrational ([e]; e.g., Ferrari, Barnes, & Steel, 2009), that procrastinators are aware of the potential negative consequences of the delay ([f]; e.g., Wohl, Pychyl, & Bennett, 2010), and that procrastination is accompanied by negative consequences ([g]; e.g., Sirois, 2004; Tice & Baumeister, 1997; van Eerde, 2003).

Following this distinction and extending the definition by Steel (2007), procrastination can now be defined as *the voluntary delay of an intended and necessary and/or [personally] important activity, despite expecting potential negative consequences that outweigh the positive consequences of the delay.*

Systematizing Theoretical Approaches to Explaining Procrastination

Analogous to the variety of definitions, ''most of the research on procrastination is not driven by a commonly shared theory'' (van Eerde, 2003, p. 1). In the attempt to systematize the variety of theoretical approaches, I grouped different understandings of procrastination into four perspectives that I found to be the most elaborated and developed ones: the differential psychology perspective, the motivational and volitional psychology perspective, the clinical psychology perspective, and the situational perspective. Each perspective will be briefly explained and described. Afterwards, I will introduce perspectives that are less developed.

The Differential Psychology Perspective

The differential psychology perspective understands procrastination as a personality trait. Studies in this perspective have built up an extensive nomological network of procrastination (cf. Ferrari, 2010; Steel, 2007) and have focused on studying the relationship of procrastination with other traits and trait-like variables. Increased procrastination is mainly related to decreased conscientiousness and increased neuroticism (e.g., Johnson & Bloom, 1995; Lee, Kelly, & Edwards, 2006; van Eerde, 2003, 2004; Watson, 2001), increased perfectionism (e.g., Flett, Hewitt, & Martin, 1995; Pychyl & Flett, 2012), low self-esteem (e.g., Ferrari, 1994, 2000; Pychyl, Coplan, & Reid, 2002), decreased optimism (e.g., Jackson, Weiss, & Lundquist, 2000), and different identity aspects (e.g., self-concept and self-presentation, Ferrari, Driscoll, & Díaz-Morales, 2007; e.g., ego identity, Shanahan & Pychyl, 2007). Procrastination is also often associated with self-handicapping (e.g., Ferrari, 1991; Lay, Knish, & Zanatta, 1992) as a strategy to preserve one's self-esteem. Some studies have covered the relationship between intelligence and procrastination, but have found no correlation (Ferrari, 2000; cf. Steel, 2007).

The Motivational and Volitional Psychology Perspective

The underlying understanding of procrastination within the motivational and volitional psychology perspective is that procrastination incorporates a failure in motivation or/and volition, leading to the intention-action gap (Lay, 1986; Steel, 2007). Studies have focused on procrastination's relationship with motivational and volitional variables and have found that in the case of motivational variables, procrastination is less likely to occur for intrinsically motivated (e.g., Brownlow & Reasinger, 2000), self-determined (Senécal, Julien, & Guay, 2003), or flow-inducing (e.g., Seo, 2011) activities. Procrastination is also less likely to occur in

the case of mastery approach goal orientation (e.g., Howell & Buro, 2008; Howell & Watson, 2007), internal locus of control (e.g., Brownlow & Reasinger, 2000), and increased self-efficacy (e.g., Haycock, McCarthy, & Sky, 1998). In the case of volitional variables, procrastination can be traced back to decreased self-regulation (e.g., Dietz, Hofer, & Fries, 2007; Senécal, Koestner, & Vallerand, 1995; Wolters, 2003), decreased self-control (e.g, Schouwenburg & Groenewoud, 2001), decreased action-control (e.g., Blunt & Pychyl, 2005), or volitional problems in general (e.g., Dewitte & Lens, 2000; Dewitte & Schouwenburg, 2002). Other variables that have been associated with procrastination in this realm include time management (e.g., Lay & Schouwenburg, 1993) and time orientation (e.g., Ferrari & Díaz-Morales, 2007), as well as learning strategies (e.g., Howell & Watson, 2007; Wolters, 2003).

This perspective is the one among the four that has drawn on a variety of concrete theories (e.g., Self-Determination Theory, Senécal et al., 2003; Temporal Motivation Theory, Steel & König, 2006; Action Control Theory, Blunt & Pychyl, 2005) to explain procrastination. For example, the Temporal Motivation Theory (Steel & König, 2006; cf. Gröpel & Steel, 2008) explains procrastination from a time discounting perspective (Howell, Watson, Powell, & Buro, 2006; König & Kleinmann, 2004; Schouwenburg & Groenewoud, 2001). It is composed of four major constructs: (a) expectancy, (b) value, (c) delay, and (d) impulsiveness. Mathematically expressed, motivation = (expectancy × value) / (impulsiveness × delay). The motivation increases as the expectancy of an outcome and the size or value of an outcome increase. Motivation decreases as the delay before this outcome and the impulsiveness increases. According to this theory, procrastination is more likely to occur if the outcome of an unpleasant activity offers rewards in the distant future. The concept of time discounting allows for an interdisciplinary bridge between psychology and economics because it relates to picoeconomics (cf. Ross, 2010) and the rational choice framework (e.g., Akerlof, 1991; Ross, 2010), as well as the concept of present-biased preferences (e.g., O'Donoghue & Rabin, 1999a).

The Clinical Psychology Perspective

The clinical psychology perspective focuses on the conditions of and interventions for the clinically relevant extent of procrastination (e.g., Rist, Engberding, Patzelt, & Beißner, 2006; Schouwenburg et al., 2004). In explaining procrastination, these theoretical approaches often draw on psychoanalysis, cognitive behaviorism, and neuropsychology (for a summary, see Ferrari et al., 1995; Chapter 2). Of all the perspectives, it is the clinical one that puts the negative consequences and correlates of procrastination intensely into focus because these determine whether procrastination is clinically relevant or not. Studies within this perspective relate procrastination to depression (e.g., Flett, Blankstein, & Martin, 1995; Solomon & Rothblum, 1984), (test) anxiety (e.g., Flett, Blankstein, & Martin, 1995; Rothblum et al., 1986; Spada, Hiou, & Nikcevic, 2006), stress, and stressors (e.g., Flett, Blankstein, & Martin, 1995; Jackson et al., 2000; Tice & Baumeister, 1997). Some studies understand procrastination as a form of revenge (Ferrari & Emmons, 1994) or rebellion (Solomon & Rothblum, 1984). Others have shown that cluster-c personality disorders (e.g., obsessive-compulsive personality disorder) are associated with procrastination (Ferrari et al., 1995; Chapter 8).

The Axis 1 disorder ADHD is manifested by procrastination among other symptoms, such as inattentiveness, difficulty in getting work done, and organizational problems. However, studies suggest that chronic procrastination is related to ADHD only for individuals diagnosed with ADHD (Ferrari & Sander, 2006). For individuals who were not formally diagnosed with ADHD, procrastination does not seem to be associated with attention deficits (Ferrari, 2000). Instead, procrastinators seemed simply to be more prone to boredom than non-procrastinators and, thus, to seek a multitude of stimulating situations. In addition, item overlay between procrastination and ADHD measures might artificially augment the relationship between the two constructs and the groups defined as procrastinators and as diagnosed with ADHD (Rist, Glöckner-Rist, Höcker, & Engberding, 2011).

To conceptualize, assess, and treat procrastination as a psychological disorder, a definition of clinically relevant procrastination is needed. In that regard, Engberding, Frings, Höcker, Wolf, and Rist (2011) have presented their preliminary results of a case definition, suggesting that procrastination can be classified as clinically relevant if its duration is more than 6 months, its intensity is more than half of the day, and there are at least five physical or psychological complaints. However, conceptualizing procrastination as a disorder might propel the stigmatization of procrastinators, even more so because studies with regard to the social perception of procrastinators have shown that others see them in a negative light (e.g., Ferrari, 1992a; Ferrari & Patel, 2004). A new study on the (conscientiousness-) link between procrastination and social loafing suggests that this negative light might also be due to the higher propensity of social loafing among procrastinators (Ferrari & Pychyl, 2012).

The Situational Perspective

Unlike the aforementioned perspectives in which the procrastinating person is at the focus of the explanation, the situational perspective focuses attention on the situation, and as such, the context. Within this perspective, procrastination is understood as a phenomenon that is evoked by certain situational features. These situational features pertain to task characteristics, such as task difficulty and attractiveness (e.g., Ackerman & Gross, 2005; Blunt & Pychyl, 2000; Ferrari & Scher, 2000; Lay, 1992; Milgram, Marshevsky, & Sadeh, 1995; Milgram et al., 1988; Pychyl et al., 2000), plausibility of the assignment (Milgram,

Dangour, & Raviv, 1992), autonomy (Ackerman & Gross, 2005; Blunt & Pychyl, 2000), and teachers' characteristics (Schraw et al., 2007).

Other Considerations

There exist a few theoretical approaches that could not be assigned to one of the four perspectives. Thus, in the following, I present theoretical approaches that might have the potential to develop into a perspective of their own in the future. For instance, although not a theoretical approach in the strictest sense of the term, different endeavors exist to develop typologies of procrastination. These include the distinction between behavioral procrastination and decisional procrastination (e.g., Ferrari, 1994, 1998; Milgram & Tenne, 2000), or the distinction between arousal procrastination (i.e., procrastination due to the [false] belief that one works best under pressure) and avoidance procrastination (i.e., procrastination due to imagined and actual fears, Ferrari, 1992b; Ferrari et al., 2009). However, recent findings do not support the existence of specific measures of these types of procrastination (Simpson & Pychyl, 2009; Steel, 2010).

Turning to biological explanations, the little space that Ferrari and colleagues (1995) have granted to biological and neuropsychological explanations of procrastination still reflects the minimal effort of today's research endeavors in this field. These studies have mainly focused on executive functioning and have shown that attention deficits are not linked to procrastination (Ferrari, 2000, 2010; see above). However, all nine clinical subscales of executive functioning seem to be significantly associated with increasing academic procrastination (Rabin, Fogel, & Nutter-Upham, 2011). Unfortunately, these studies completely rely on self-reported executive functioning. Future studies might connect procrastination to the frontal brain regions, which have been associated with conscientiousness. Furthermore, the investigation of brain activity with regard to arousal procrastination could help to understand whether arousal *procrastination* refers to the false belief of working best under pressure (Ferrari, 2010) while arousal *delay* refers to the correct belief of working best under pressure. Another somewhat biological aspect is the distinction that is drawn between morning types and evening types (e.g., Ferrari, Harriott, Evans, Lecik-Michna, & Wenger, 1997), which are linked to decisional, avoidance, and arousal procrastination (e.g., Díaz-Morales, Ferrari, & Cohen, 2008).

Studies concerning the developmental aspects of procrastination are also as of yet too rare to be able to occupy a space of their own among the perspectives within this systematization. However, studies that investigate the relationship between parenting styles and procrastination (Ferrari & Olivette, 1994; Pychyl et al., 2002; Vahedi, Mostafafi, & Mortazanajad, 2009) might be a first vantage point for developing such a perspective.

Critical Acclaim of the Systematization

Although the systemization of procrastination provides an overview of the manifold theoretical approaches, two aspects of this systemization should be kept in mind when referring to it. First, there is a considerable degree of overlap between the perspectives. Consequently, not all approaches can be unambiguously assigned to one perspective. For instance, the motivational and volitional psychology perspective could have been subsumed under the differential psychology perspective because most of the studies that have been conducted in this perspective conceptualize and operationalize procrastination as a personality trait. However, because studies have investigated procrastination's relation to modifiable variables instead of to presumably stable personality variables, a distinct perspective has been dedicated to this understanding. Naturally, there is an overlap between the clinical and differential psychology perspective as well because the former conceptualizes procrastination as a lifestyle, if not as a personality trait. Furthermore, the situational perspective is the one perspective that cannot easily stand on its own because personal aspects determine, to a great extent, how a situation is perceived. Thus, this perspective cannot be understood without one of the other rather person-centered perspectives. Second, a comprehensive explanation of procrastination cannot be achieved by one perspective alone. Each perspective focuses on certain aspects of procrastination while neglecting others, which, in turn, are focused on by some other perspective. To fully understand the dynamics of procrastination, the different perspectives need to be combined. Seminal in this regard are dynamic models of motivation (e.g., Steel & König, 2006; Vancouver, Weihnhardt, & Schmidt, 2010) and those studies that investigate the interaction between personality traits and motivational or volitional aspects (e.g., Brownlow & Reasinger, 2000; Moon & Illingworth, 2005; van Hooft, Born, Taris, van der Flier, & Blonk, 2005), or the interaction between personal and situational variables (Lay, 1992; Milgram et al., 1992; Sigall, Kruglanski, & Fyock, 2000) during the course of a procrastination episode. Table 2 presents an overview of the systematization.

Future Directions

After having provided a distinction between procrastination and strategic delay (as a functional form of delay), and after having systematized the manifold theoretical approaches, this concluding part of the paper introduces future directions for procrastination research and practice. Altogether, I want to emphasize three paths to follow in the future. First, procrastination research needs to encourage the systematic evaluation of existing evaluations and the development of new, integral, and at the same time, individualized

Table 2. The four perspectives delineating an understanding of procrastination, the theories referred to in order to explain procrastination, and examples of variables that have been associated with procrastination in studies

	Differential psychology perspective	Motivational and volitional psychology perspective	Clinical psychology perspective	Situational perspective
Understanding procrastination as . . .	a trait.	a motivational or/ and volitional deficit.	a clinically relevant phenomenon.	being evoked by certain situational features.
Theories that have been referred to in order to explain procrastination:	(Big Five)	Self-Determination Theory, Temporal Motivation Theory, Action Control Theory.	Psychoanalysis, Cognitive Behaviorism, Neuropsychology.	–
Examples of variables that have been associated with procrastination in studies:	Conscientiousness, Neuroticism, Perfectionism.	Intrinsic motivation, Goal orientation, Self-regulation, Time-management.	Anxiety, depression, stress.	Task difficulty, Task attractiveness, Task specificity.

interventions. Second, procrastination research needs to go beyond studying single-context settings and drawing on student samples almost exclusively. Third, procrastination research needs to export its research endeavors into various fields of applied psychology.

The Systematic Evaluation of Existing Evaluations and the Development of New, Integral, and Individualized Interventions

With regard to treating procrastination, most interventions have either focused on teaching self-management strategies (e.g., goal setting, time management, planning, monitoring, and creating the right environment for studying) or on implementing therapeutic strategies to tackle negative affects and cognitions (e.g., cognitive restructuring; for an overview of interventions, see Schouwenburg et al., 2004). Unfortunately, publications that include reliable outcome data (i.e., sufficient group size, control group design) regarding interventions are scarce, and evaluation programs are completely lacking as of yet. Thus, until now we have been mostly unaware of the effectiveness of these interventions. To begin, procrastination research needs to claim orderly and reliable evaluation studies in order to make a reliable statement about the effectiveness of certain interventions.

Additionally, there is doubt about whether existing interventions cover all aspects of procrastination. The wide range of different research results and theoretical approaches suggests that interventions need to cover more than teaching self-management strategies or implementing therapeutic strategies to tackle negative affects and cognitions. For example, the focus on personal aspects of procrastination likely entails a neglect of situational aspects, which might be important for interventions. Thus, to continue, procrastination research needs to ensure that the existing interventions fully map out the spectrum of theoretical approaches and thus tap into all essential aspects of procrastination. Combining the template provided by the systematization along different perspectives – which has unfolded in this paper – with results of qualitative studies which have detected aspects that were not covered before (e.g., Grunschel, Patrzek, & Fries, 2012; Klingsieck, Grund, Fries, & Schmid, in press; Patrzek, Grunschel, & Fries, 2012) seems to be a promising approach for developing integral interventions in the future.

Moreover, the variety of research results supposes that each procrastinator most likely displays a very individual procrastination profile. Consequently, interventions would be most effective if they were to match individual profiles. Thus, to conclude, to meet the multifaceted phenomenon of procrastination, procrastination research needs to develop custom-tailored interventions. To allocate the best-fitting intervention to the individual profile of help-seekers, instruments that assess procrastination profiles and matching interventions need to be developed. Practitioners, in turn,

should explore their client's procrastination profile to help them gather an understanding of their unique procrastination and to select the best-fitting intervention.

In order to evaluate the effectiveness of procrastination interventions and to assess individual procrastination profiles, valid procrastination scales need to be developed that embrace the unnecessary, irrational, or even harmful connotation of procrastination in *every* item. There exist valid scales for assessing academic procrastination (e.g., Aitken Procrastination Inventory, Aitken, 1982; Procrastination Assessment Scale-Students, Solomon & Rothblum, 1984; Tuckman Procrastination Scale, Tuckman, 1991); as well as measures for everyday procrastination (e.g., General Procrastination Scale, Lay, 1986; Decisional Procrastination Scale, Mann, 1982; Adult Inventory of Procrastination, McCown & Johnson, 1989; for an overview of procrastination measures see Ferrari et al., 1995; Chapter 3). Strictly speaking, however, not all items of these scales express procrastination. Whenever the words ''to delay'' and ''to postpone'' are used instead of ''to procrastinate,'' these items do not correspond to the aforementioned definition of procrastination. They rely on the tacitly assumed convention that the words ''to delay'' and ''to postpone'' are identical to ''to procrastinate.'' Inspiring in this regard are newly developed scales – the Pure Procrastination Scale and the Irrational Procrastination Scale (Steel, 2010) – which capture procrastination as the irrational delay in every item.

Comparing Procrastination Across Different Life Domains

Procrastination research has investigated procrastination in a variety of different life domains (e.g., academic, Dewitte & Lens, 2000; work, Ferrari, 1992a; health, Sirois, 2004; and relationships, Ferrari & Pychyl, 2012; Steel & Ferrari, 2012). Now, studies that compare procrastination's characteristics across different domains are necessary (for a step in this direction, see Ferrari et al., 2009) to fully understand this phenomenon. Naturally, this kind of investigation might be theoretically volatile concerning procrastination's conceptualization as a personality trait. According to Steel, there is evidence ''that procrastination has sufficient cross-temporal and situational stability'' (2007, p. 67) when it comes to underpinning the notion of procrastination as a personality trait. However, to be able to profoundly speak of procrastination as a trait, research is needed to show that procrastination exists for one person in more than one context (i.e., domain), and not solely in one context (e.g., academic domain). If it turns out that procrastination is a phenomenon with cross-situational and cross-contextual stability, the notion of procrastination as a personality variable will be supported. If it turns out that procrastination displays itself very differently in different contexts (e.g., domains), the notion of procrastination as a domain-specific phenomenon might be more appropriate.

In the course of comparing procrastination across different life domains, it would be worthwhile to draw on a variety of samples. Probably due to availability reasons, procrastination research has often drawn on (university/college) student samples. The studies that have investigated procrastination among nonstudent samples (e.g., procrastination in the workplace, Ferrari, 1992a; Hammer & Ferrari, 2002; Lonergan & Maher, 2000; procrastination among job seekers, Lay & Brokenshire, 1997; Senécal & Guay, 2000; procrastination in regard to filing taxes, Kasper, 2004; procrastination in regard to the preparation of retirement, Akerlof, 1991; O'Donoghue & Rabin, 1999b; procrastination among Christmas shoppers, Ferrari, 1993; and procrastination of health-related behaviors in community-dwelling adults, Sirois, 2007) have delivered insight that procrastination does exist and that it is also detrimental to subjective well-being for individuals who are not currently enrolled at a university/college. Thus, procrastination research needs not only to go beyond single-context settings, but also to draw on a variety of samples.

Exporting Procrastination Research Endeavors Into Various Fields of Applied Psychology

Due to procrastination's high prevalence among students, its impediment to academic success, its clinical relevant outgrowths, and its negative impact on health, procrastination research results are widely disseminated within the scientific communities of educational, clinical, and health psychology. Other fields of applied psychology should be encouraged by studies on procrastination among nonstudent samples to also closely examine procrastination. Considering the field of industrial psychology, for example, procrastination could be linked to productivity outcomes on an organizational level and job satisfaction on a personal level. Considering the field of environmental psychology, procrastination could be linked to practicing ecologically sensitive and sustainable behaviors. The participation of new fields of (applied) psychology in investigating procrastination will lead to a fruitful exchange of ideas that will ultimately enrich the understanding of the phenomenon.

In returning to the metaphor of the savage garden, this paper suggests weeding with regard to procrastination definitions and the assessment of procrastination, and cultivating with regard to certain underdeveloped theoretical perspectives, in new fields, and in the development of procrastination interventions.

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