Understanding of computers and procrastination: A philosophical approach

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A B S T R A C T

Computer procrastination is a complex problem that is under-researched. After identifying a number of key characteristics of it, we survey five existing fields of research that may contribute insights into this interdisciplinary problem, and demonstrate that none of these areas can provide satisfactory insight on their own. A philosophical framework for understanding computer use is introduced, and applied to a case study to demonstrate its potential in understanding the richness of computer procrastination. We then show how this framework can reveal the ways in which each of the existing fields is limited in its ability. The result is both an understanding of why existing research has not directly addressed this issue, and suggestions for a way forward for further research into computer procrastination.

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1. Introduction

While working on a short blog entry related to your research, you became frustrated about your research progress. Feeling unengaged in the blog writing, you switch to a new browser window to do a quick search on a related topic. As long as you have the browser open, however, you navigate to a game site and play an online version of the old dice game Yahtzee. An hour later, you are still playing, trying to better your high-score, and feel guilty about the waste of time. No matter how mightily you steel your will to the contrary, and no matter the feelings of guilt and stress that result, this kind of online procrastination continually sneaks into your life and disrupts your productivity.

There seems to be something about computer technology and internet connectivity that distracts us, that tempts us towards computer procrastination (Lavoie & Pychyl, 2001). This tendency is evidenced by personal experience and by anecdotal evidence (Johnson, 2011; Klosowski, 2012; Mnookin, 2007). For a tool widely perceived to enhance our productivity in many areas of life, this is remarkable. However, there has been very little academic research into this phenomenon. Non-computer-specific procrastination has been studied in the area of psychology, but everyday experience tells us there is something about the computer that makes procrastination easier.

This naturally leads us to wonder, what it is about the computer that tempts us towards procrastination? In order to answer this question, however, two related questions must be addressed:

1. Why has there been so little research into computer procrastination?
2. How (on what basis) should it be studied?

The purpose of this paper is to propose and explain a framework for understanding computer procrastination, and to show that framework in action and demonstrate its ability to provide insight into complex problems. In this sense of use, "frameworks for understanding" are what enable thinkers to generate theories (Mitcham, 1994, p. 154), so such a framework can lay the groundwork for future attempts to explore the nature of computer procrastination.

Frameworks are tested in a different way from theories. Whereas theories may be deemed true or false, frameworks are fruitful or fruitless, useful or useless. So, in attempting to address the above questions, this paper takes the form of a review of several fields of research, followed by argument, rather than that of empirical research.

Section 2 identifies a number of characteristics of computer procrastination, some of which it shares with non-computer procrastination. Section 3 contains an overview of some of the areas of research which may have insight to contribute to the problem, but shows that none are able to address computer procrastination fully. Section 4 introduces a new approach to understanding computer procrastination, based on a novel philosophical framework, and demonstrates how this framework might be able to address

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computer procrastination, thus providing an answer to Question 2. Section 5 revisits each of the other areas of research, using the framework to reveal why each is not able to address computer procrastination, thus addressing Question 1. Finally, Section 6 summarizes the contributions this research can make to a wide variety of areas.

2. Characteristics of the Procrastination Problem

Procrastination has been defined in a variety of ways in the literature, as summarised in Table 1. In this section, we analyse these definitions to generate a list of characteristics we'll need to consider in order to be able to address the problem.

The Oxford English Dictionary defines procrastination as "the action or habit of postponing or putting something off; delay, dilatoriness. Often with the sense of deferring through indecision, when early action would have been preferable" (OEDOnline, 2012). The word 'dilatoriness' has strong connotations of procrastination being problematic. Even though occasionally the procrastination might prove beneficial, there is at least an expectation of detrimental outcome, and/or a feeling of guilt. Lay's (1986) definition of procrastination as "the tendency to put off that which is necessary to reach some goal" emphasises the delay, while lacking any sort of normative element. Ferrari, drawing on Soloman and Rothblum (1984), alludes to an evaluative element when he uses a definition of "the purposive delay in beginning or completing a task to the point of experiencing subjective discomfort" (Ferrari, 1992, p. 98). Several researchers strengthen this normative element by including the notion of "ought" in their definition: Andreou (2007, p. 183) suggests that procrastination involves "delaying in which one leaves too late or puts off indefinitely what one should – relative to one's ends and information – have done sooner". Silver and Sabini (1981) suggest that in true procrastination, a behaviour must be irrational, relative to what the procrastinator 'ought' to be doing. Gjelsvik (2010, chap. 6) explains that procrastination occurs when the procrastinators recognise, or at least ought to recognise, that the benefits of prompt action outweigh the benefits of delay, but delay nonetheless. For the purposes of this paper, we accept Steel's (2007, p. 66) definition of procrastination, which efficiently combines a number of elements from other researchers: "to voluntarily delay an intended course of action despite expecting to be worse off for the delay".

However, all of these definitions are for generic procrastination, not computer procrastination. Unfortunately, extant literature contains no definition of computer-related procrastination, nor even any substantial discussion of its characteristics and what differentiates it from ordinary procrastination. Therefore, in addition to the characteristics of ordinary procrastination, two further elements are adopted: First, in computer procrastination, both the original intended task and the procrastinatory activity take place using a computing device, and second, we

explicitly recognise that such procrastination can occur not only in the workplace, but at home and on the move, using personal computers, tablet devices, and smart phones. The later is important, because other research tends to focus exclusively on workplace computer use.

Thus, in this article, the particular kind of procrastination we're interest in has several characteristics:

1. both intended and procrastinatory activities using the computer
2. voluntary delay of intended task by performing some other activity using the computer
3. irrational excuses or self-deception
4. a normative perception of being worse off
5. can take place anywhere, not just the workplace.

Having clarified the characteristics of the phenomenon we are interested in, we will now use these characteristics to demonstrate that other research areas cannot comprehensively address the full problem of computer procrastination.

3. Existing research relevant to computer procrastination

There are a number of research areas where we might expect that computer procrastination would be studied, but we will see that it is not. We look at five areas here, in which some research has been done that is relevant to the issue, and show that none is able to adequately address the whole issue. Reasons for this deficiency are discussed later.

3.1. Computer procrastination and psychology

In Steel's (2007) large meta-analysis of 250 peer-reviewed articles on procrastination, the vast majority are from within psychology or one of its sub-fields. Thus the field of psychology seems a natural starting point for studying this issue. Research in psychology has studied procrastination from a number of angles. Findings have correlated procrastination with a number of personality traits, including:

- Low conscientiousness (Johnson & Bloom, 1995; Milgram, Mey-Tal, & Levison, 1998).
- Low self-efficacy and self-esteem (Milgram et al., 1998).
- Irrational beliefs (Brownlow & Reasinger, 2000; Soloman & Rothblum, 1984).
- Self-handicapping (Ferrari & Tice, 2000; Milgram et al., 1998).
- Impulsiveness (Blatt & Quinlan, 1967; Schouwenburg & Lay, 1995).
- Feelings of
  - anxiety (Rothblum, Solomon, & Murakami, 1986; van Eerde, 2003),

Table 1
Varying definitions of procrastination.

Reference	Definition
Oxford English Dictionary (2012)	"The action or habit of postponing or putting something off; delay, dilatoriness. Often with the sense of deferring through indecision, when early action would have been preferable."
Lay (1986)	"The tendency to put off that which is necessary to reach some goal."
Soloman and Rothblum (1984)	"The act of needlessly delaying tasks to the point of experiencing subjective discomfort."
Andreou (2007)	"Delaying in which one leaves too late or puts off indefinitely what one should – relative to one's ends and information – have done sooner."
Silver and Sabini (1981)	"A procrastinator is someone who knows what (s)he wants to do, in some sense can do it, is trying to do it – yet doesn't do it." "A person is procrastinating if (s)he is irrationally putting off, and if this irrationality is caused by recognizing … what (s)he ought to be doing."
Gjelsvik (2010, chap. 6)	"Procrastination is delaying an action for no good reason."
Steel (2007)	Procrastination is "to voluntarily delay an intended course of action despite expecting to be worse off for the delay."