

## **A conversation with Dr. Piers Steel, July 21, 2015**

### **Participants**

- Dr. Piers Steel – Professor and Distinguished Research Chair, Human Resources and Organizational Dynamics, Haskayne School of Business, University of Calgary
- Luke Muehlhauser – Research Analyst, Open Philanthropy Project

**Note:** These notes were compiled by the Open Philanthropy Project and give an overview of the major points made by Dr. Steel.

### **Summary**

The Open Philanthropy Project spoke with Dr. Steel of the University of Calgary as part of its investigation into anti-procrastination interventions. Conversation topics included causes of procrastination, interventions that have been experimentally tested, current and future areas of study in the field, and other sources of integrated research on procrastination and motivation.

### **Theories of procrastination**

Many researchers studying procrastination and motivation believe that anxiety leads to procrastination, because people often self-report this phenomenon. But when tested scientifically, no correlation is found between anxiety and procrastination. However, many clinicians still believe that a correlation exists, and research is frequently carried out from this perspective. The available evidence indicates that procrastination is instead related to impulsiveness, but may manifest differently given different personality traits.

### **Experimentally tested anti-procrastination interventions**

Testing of anti-procrastination interventions by randomized controlled trials (RCTs) has so far been very limited. Although there is observational evidence for the efficacy of a number of interventions, most of them have not been tested experimentally. However, because procrastination is closely related to self-control and self-discipline, many of the studies in these fields could be drawn on for procrastination research.

### **Established techniques**

#### *Mental contrasting with implementation intentions (MCII)*

The MCII intervention is backed by RCTs. This combines the mental contrasting approach developed by Gabriele Oettingen with Peter Gollwitzer's implementation intentions technique. These approaches have been found to be complementary when used together.

#### *Pre-commitment*

Another technique that attempts to foster self-control is pre-commitment, or the practice of locking oneself into pursuit of a goal by incurring up-front costs or imposing penalties for failure.

### *Goal setting*

Goal setting has been found to be an effective anti-procrastination technique. It has been the subject of much research, particularly by Gary Latham and Edwin A. Locke. Dr. Steel's team has used some goal setting techniques to create the goal training tool available on Dr. Steel's website ([procrastinus.com](http://procrastinus.com)).

### *Time restriction*

Anna Höcker, Margarita Engberding, Sarah Nieroba, and Fred Rist, a group of researchers at the University of Münster in Germany, studied time. Their study forced participants to practice concentration by giving them only 15 minutes in a day to complete their work. Although some participants became frustrated by the time restriction, the short window allowed them to practice working very intensely. Eventually, the working time window was expanded to 30 minutes and then further expanded. In each stage, participants were given only as much time as they showed themselves capable of using well. This method has been highly successful.

### *Other techniques outlined in The Procrastination Equation*

Dr. Steel discusses some concepts in his book, *The Procrastination Equation*, such as "success spirals" (i.e., positive reinforcement achieved through small successes, leading to increased confidence and further successes), that have substantial evidential backing as anti-procrastination interventions. Other effective techniques are likely to exist, but Dr. Steel's team has not yet investigated all of them.

### **Less established techniques**

Other techniques that have shown some potential to combat procrastination include mindfulness meditation and resource allocation. Resource allocation in this context refers to taking advantage of natural circadian rhythms so that people work on their most difficult tasks when they have the most energy. Less research has been conducted on these methods.

### **Challenges of implementing anti-procrastination interventions**

Even if researchers on procrastination observe that certain techniques work, getting people to implement these techniques correctly can be difficult. A number of different methods must be tried to determine what interventions people will actually adopt. Bibliotherapy, for example, will only work if people are able to apply what they read. Life coaches may be able to walk people through the technique, but this depends on finding a life coach who will teach the principle as suggested. Other people respond better to an app-based intervention.

One challenge inherent to anti-procrastination interventions is that the people most in need of them are the least likely to have the self-regulatory control required to carry them out independently.

Dr. Steel estimates that 5–10% of the population is born with a high degree of self-control and so does not need these interventions. Perhaps 30–40% of the population has some tendency toward procrastination, and can be substantially helped by anti-procrastination techniques. The 50% of people with a lower degree of self-control are more difficult to influence using these techniques, and the 10–15% with the least self-control are unlikely to ever benefit from them.

## **App-based interventions and experimental testing**

### **Goal setting app**

Dr. Steel’s team has built a 10-step app that walks users through the process of creating better goals. Each step is based on a scientifically established principle. The app asks users to create goals that are challenging, specific, and approach-oriented rather than avoidance-oriented (e.g., “eat nutritiously” instead of “stop eating junk food”) to maximize their motivational power. Dr. Steel’s team then follows up with the app users to gauge whether this process actually helps people set more achievable goals. Ideally, the app would include a social component, allowing users to share and compare goals via Facebook or Twitter.

### **Collaboration with Saent**

Dr. Steel’s team is in the process of finalizing a partnership agreement with the start-up company Saent to test its productivity-enhancing device and app.

Developing products for use as both research platforms and commercial products, as Saent is doing, is difficult because the two purposes involve competing priorities. A product developed for scientific use must focus on scientific utility over attractiveness to consumers, while commercial product developers must prioritize attributes that make consumers want to buy.

## **Future anti-procrastination interventions and testing**

### **Students in massive open online courses (MOOCs) as test subjects**

Dr. Steel believes that the next phase of procrastination intervention research will involve the testing of techniques on much larger groups of people. Working with Saent, Dr. Steel’s team hopes to build apps for different interventions and form a partnership with a MOOC. MOOC students would be an ideal group of test subjects because of their large numbers (courses can enroll between 60,000 and 70,000 people) and because they are all performing the same online tasks.

Such a partnership with a large MOOC might enable researchers to simultaneously carry out hundreds of studies, all with very large sample sizes, on different app-based interventions. Dr. Steel believes that within a few years of testing, this approach would provide more useful experimental results in this field than have

been produced to date. Once a certain amount of data has been gathered, the testing program can be continuously refined, and one test's results can feed directly into the next test's design. The research program can also be scaled and reproduced on a global level, including translation into other languages.

### **Interactive simulation**

One area of research in this field involves creating a simulation or model of an individual's personality, which is capable of interacting as the individual would in various situations, with some limitations. One researcher, Jeffrey Vancouver at Ohio University, is particularly focused on this approach. Dr. Vancouver believes that moving from written qualitative models to a more dynamic, interactive simulation-based model will be important for future motivation research. Dr. Steel believes that, along with using MOOC students as test subjects, mathematical modeling of behavior is one of the most promising areas in motivation research.

### **Idiographic approach to treatment**

Current anti-procrastination interventions, such as teaching goal setting to a large group of people, tend to be one-size-fits-all. Dr. Steel's work has suggested that the ideal approach would be idiographic, or tailored to the individual, because the factors contributing to procrastination may change based on personality and the circumstances of the goal pursuit. Effective intervention would require a diagnostic test to determine individual self-regulatory strengths and weaknesses. This could help clinicians offer recommendations for particular treatments, whether self-administered or assisted with software or another tool.

However, before this can be done, clinicians need to have access to a variety of techniques known to be effective. More testing must also be done to see how these techniques work in combination, with differences from individual to individual moderating the choice of techniques. Eventually, researchers will learn the interactive effects between techniques and see which work better together than on their own. So far, the only example of an established successful combination intervention is MCII.

### **Integrated research on the motivation challenge**

One difficulty with this area of research is the vast range of literature produced on it. There are a number of angles from which to view problems of motivation and procrastination, and most researchers specialize in one part of the motivation challenge rather than taking an integrated approach. In addition, terminology is not necessarily consistent from one researcher to another. Dr. Steel and others call this the "jingle/jangle" problem, in which different words refer to the same thing or the same word means different things. Attempting to use consistent language to catalog all these approaches is challenging.

### **Other resources**

Other researchers who can offer a broad perspective on existing work on motivation include:

- **James Beck** at the University of Waterloo in Canada
- **Richard DeShon** at Michigan State University
- **Kevin Murphy** at Colorado State University

*All Open Philanthropy Project conversations are available at  
<http://www.givewell.org/conversations>*