



# Project Report **Proactivation**

Team Proactivation dedicated themselves to decreasing procrastination in students. Procrastination describes the involuntary act of postponing pending tasks with negative consequences on a collective and individual level. It portrays a severe challenge, especially for students, and has an impact not only on academic performance but also on mental well-being. To help with this, Team Proactivation designed an anti-procrastination online course that aims at equipping students with a metacognitive skillset. The course spans three weeks and consists of short videos and a workbook helping students to implement the knowledge gained from the videos.

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# Preface by the Supervisor

Prof. Dr. Ilona Grunwald Kadow

Procrastination affects all of us. As a professor, I experience it all the time. While I am generally good at keeping up with deadlines, for instance by making prioritized 'to do' lists, some things seem to always end up at the bottom of the list over and over again. With the PhD students and postdocs in the laboratory, who are hard-working and very motivated individuals, I find that some things just never get done (like writing a report or doing an annoying experiment). Working with bachelor and master students, I get a similar picture: writing reports, essays and alike or preparing for an exam in time seems so hard. I am also a mother and see the same with my children. Unfortunately, this procrastination is not

only irritating, but also harmful as it results in missed opportunities, failed exams, loss of trust, and the general unpleasant feeling of falling behind.

During the Covid-19 pandemic, it became painfully obvious that procrastination is less a result of too much partying or spending time on one's hobbies, but rather a lack of peer-group support. As humans, we are highly social animals. Social interactions help us to not only feel better (at least sometimes) but also to structure our days. Why exactly people procrastinate and what they believe could help them to ameliorate it, remains unclear.

The TUMJA team 'Proactivation' has tackled this question in two ways. First, they took the academic approach and researched the topic extensively through existing literature, talking to scientists, considering related studies, surveys and so on. In their survey of over 800 participants, they discovered that over 70% of students report suffering from procrastination academically and mentally. Next, they developed a practical approach to help students experiencing procrastination to figure out what support they lacked and which measures could help them to boost motivation and discipline. To this end, they developed a web-based course with questionnaires, information and training videos and materials to help

students help themselves. The first round of this course provided promising results: students who successfully finished the training reported a significantly lower level of procrastination and an increase in mental well-being.

For me, working with this talented and ambitious group of TUM students was a great opportunity and experience. I am very impressed by what they have built as a team, especially during times of social isolation. I am convinced that the tool they've developed is a powerful step to improve students' mental well-being and academic success. ■

## #giveyourlastminuteabreak

Nicole has already cleaned the apartment today, did half an hour of yoga, went for her groceries, and did her laundry, and the laundry of her boyfriend. Up to here, it sounds like a productive day. But Nicole has not yet opened her laptop to work on her programming homework for her computer science class. Although she spends the whole day thinking about it. The assignment is due tomorrow, with 18 hours to go, so, again, a last-minute assignment.

More than 90% of students feel like Nicole sometimes. They know they should do their homework, study, or write an essay. But instead of working on it, they put it off, they procrastinate. Procrastination is much more than just delaying work. It describes the irrational delay of actions leading to subjective discomfort. That means that we put off tasks we actually know we should work on now rather than later. And while we do that, we feel so guilty about it that we harm ourselves. Nicole has been thinking about her programming exercise the whole day and feels an ever-increasing pressure to start. The pressure leads to guilt and guilt leads to anxiety and stress. But Nicole is no exception. Over three-thirds of students report that procrastination affects their mental health. Health and procrastination are linked in several ways. The most evident link might be that procrastination affects our mental health as we feel guilty and more stressed, as Nicole does, the closer the deadline approaches. The same holds the other way around. Our mental health also affects our procrastination habit – a vicious circle. Procrastination also affects our physical health, if, for example, we procrastinate about going to the fitness studio, or making that dental check-up appointment. Apart from impacting our health, procrastination also affects academic performance.

There are many explanations for why people procrastinate. Some experts find evidence in basic personality traits that lead to pro-

crastination. But it is more than just a problem of personality. One theory states that while procrastinating we actually just try to avoid negative feelings associated with certain tasks, e.g. we anticipate the difficulties, disappointment, and the feeling of failure and thus do not start the task at all, or at least do not start it until the last minute. No wonder we do fail then. What a great excuse we just found! The temporal motivational theory finds a more mathematical approach. It defines an equation describing the motivation for a specific task dependent on four variables, namely expectancy, value, impulsiveness, and delay. The higher our motivation for a task, the lower our urge to procrastinate. And while expectancy – the confidence of achieving an expected outcome – and the value assigned to the outcome have a positive effect on motivation, impulsiveness – the inability to forgo immediate gratification – and delay – the time that passes until the deadline – have a negative effect. In short, the more confident we are in achieving a result and the more value we assign to the result, the less we procrastinate. A long deadline and our inability to ignore short-term distractions lead to more procrastination. Other explanations draw on the intention action gap – a theory of how we are not really lacking intentions, but the actions needed to implement them – or phenomena like planning fallacy, or future discounting. Whatever scientific theory we take and whatever latest evidence we find, one thing we should note, is that procrastination has nothing to do with laziness or lack of ambitions. Instead, stigmas like these lead to a lot of students feeling ashamed of what at first sight seems to be a problem of productivity. And if the last two years have taught us anything about how to handle mental illness, it's that stigma is the last thing we need.

However, there are things that might help when students procrastinate. Understanding the problem is the first step, hands-on methods and techniques are the second, and applying those to everyday

life is step number three. At TUM, a student research project has developed a solution aiming exactly at those three steps. It is an online course named Proactivation. Within nine short videos, it explains the scientific background of procrastination, provides methods on the topics of time management, goals, and focus, and comes with an exercise book to implement those methods directly. Nicole learned about the course in her linear algebra class. The professor mentioned it at the beginning of the class and then continued to speak about the latest exercises. Nicole had the feeling that she would probably not have a closer look at those exercises until shortly before the exam and maybe that thought was the reason she checked the Proactivation website later that day.

One method she liked from the start was the weekly planner. She could preorganize her week and hold herself accountable for the things she does not do, and celebrate things she achieves. Another method is about how to avoid task switching. Nowadays technological distractions are inevitable and make it hard to focus. Sometimes it might even feel like they are forcing us to procrastinate by hanging out on Instagram, TikTok, and co. Experiments show that students spend on average less than six minutes studying before switching to another task, mostly texting or social media. At the same time, banning the phone and social media completely gives rise to internal distractions and simple FOMO — fear of missing out what's going on right now. Through organized technology breaks and time management methods like the pomodoro technique, Nicole minimizes distractions. In particular, the pomodoro technique helps her because she is able to have fixed times for focusing and fixed times for breaks to reward herself for staying focused. "My favorite method for effective studying is the Pomodoro Technique. I work for 25 minutes, take a 5-minute break, and work for 25 minutes again." Nicole repeats this cycle four times until she takes a long break.

"Because of the limited time I concentrate, I'm much less distracted," she says.

But Nicole is not the only one to have benefited from Proactivation. More than 600 students have already registered for the course and the majority of those who have already finished it claim it has helped them in their battle against procrastination. Those improvements can even be made tangible by using the PPS, a procrastination scale ranging from X to X that is commonly used nowadays in scientific discourse. After finishing the course the average score of the students decreased by 4 points.

What stood out was how many participants noticed an increase in their conscientiousness. Most participants stated that in preparation for deadlines they often waste time by doing other things. However, after completing the course, the average score on this question decreased from 4.2 out of 5 points to 3.3 points. Especially effective here were time planning methods like the ALPEN method and day planning.

Nicole is working on a submission right now. In a week she has to present a classification algorithm she programmed herself. "Actually, I'm already done," she says, laughing. "There are still a few things I can improve, but it's not much." Nicole has a date this afternoon and is looking forward to her free time. "I didn't think I'd ever be done a week before submission in my studies," she says. "I like to spend the time I gain in cafés or with my boyfriend. He's really happy about it, of course," Nicole grins and sets off to make it to her date on time. ■

# Proactivation

## Abstract

Procrastination describes the involuntary act of postponing pending tasks with negative consequences on a collective and individual level. It presents a severe challenge, especially for students, and research is yet to determine its causes and effective countermeasures. For the 31 participants in our study, we designed a three-week online course – the Proactivation course – which is aimed at reducing procrastination and evaluating its connection with mental well-being. By implementing the Pure Procrastination Scale (PPS) and WHO (Ten) well-being index (WHO-10) in a pre- and post-intervention survey, we found a significant decrease of the PPS mean score, but no significant changes of the WHO-10 mean score. In other words, participants experienced a measurable (subjective) increase in their productivity without a significant improvement of their mental well-being. That said, the reduced procrastination might yet have a positive effect on their well-being, which merely may not present itself in the short term.

## 1. Introduction

### a. Background

For many people, procrastination constitutes a highly prevalent and severe challenge. In particular, students are affected. According to a study of Steel in 2007, 90% of students stated that they procrastinate, 50% of those even on a regular basis. The phenomenon describes the irrational and involuntary act of delaying pressing tasks even in the face of resulting negative consequences. While procrastination is an inherent part of human behavior and is considered normal to a certain degree, the magnitude of the consequences and possible countermeasures remain widely unknown.

Determining the causes of excessive procrastination presents a complex and controversial issue in the field of psychological research. Some explanations focus on the connection of procrastination and specific personal traits. For instance, they underline the increased susceptibility to procrastination in subjects who display a high degree of impulsiveness, lack of self-control (Rozenal and Carlbring, 2014) and a low frustration tolerance (McFadden, 1999). Moreover, irrational and dysfunctional beliefs including fear of failure, perfectionism (McFadden, 1999) and unrealistic expectations (Rozenal and Carlbring, 2014), are directly linked to procrastination.

In addition to that, sociodemographic and cultural differences need to be taken into consideration. It is well-known that procrastination correlates with age (O'Donoghue and Rabin, 1999; Banich, 2009), as the perception of time changes, and with gender (van Eerde, 2003). Furthermore, some scientists attribute the tendency to procrastinate to cultural characteristics. Having an impact on goal orientation, they shape whether the individual's priority lies in the development or in the demonstration of one's skills (Liem and Nie, 2008). Accordingly, significant differences between Western and Eastern cultures could be shown (Dekker and Fischer, 2008).

Nonetheless, the extent of negative consequences resulting from procrastination is tremendously underestimated. Studies have shown that procrastination has a negative impact on academic performance resulting in lower scores in papers and exams (Tice and Baumeister, 1997). Furthermore, a higher engagement in scientific misconduct, including falsification, fabrication and plagiarism, could be observed in relation to procrastination (Patrzek et al., 2015).

On top of that, the effects of procrastination on mental health are of major importance. In Stead et al. (2010), a link between procrastination, stress and mental health is established. Studies have shown that various negative associations such as depression and anxiety are related to procrastination (Saddler and Sacks, 1993). Additionally, social stigmas can aggravate the individual's psychological distress.

Consequently, discovering effective techniques which counteract procrastination are essential and of high public interest; this is especially true for students. For this purpose, we designed a 3-week online course, the Proactivation course, to pursue this endeavor. As we aim to reduce the amount of procrastination and quantify its effects on mental health, we hypothesized that the Proactivation course could decrease procrastination in students and, thus, lead to improved mental well-being.

### b. Motivation and course composition

To estimate the prevalence and severity of procrastination, we conducted a pilot study with 805 participants. The results showed that 74.2% found themselves often procrastinating, 65.9% stated that



procrastination affects their academic performance and 77.0% stated that procrastination affects their mental health. Furthermore, positive correlations of procrastination with lack of time management, trouble concentrating and distraction by technical devices could be found. This alarming data motivated us to design the Proactivation course. Within the course, we present hands-on methods which aim to improve motivation, time management and focus.

In addition, we aim to raise awareness about procrastination and to contribute to a deepened understanding of this complex psychological phenomenon.

## 2. Methods

### a. Study Design

The data collection is designed as a controlled trial. Procrastination behaviors and mental well-being were measured before participants took the three-week online course and again after they finished it. To enable all participants to experience the online course, we did not include a control group in the study design.

### b. Recruitment and Marketing

Various channels were used to recruit participants for the online course. Firstly, flyers promoting the launch of the course were handed out to all student councils of the Technical University of Munich for further distribution. Secondly, an Instagram channel was created to promote the course. On average two or more posts a week have been published on the channel during the period from September 2021 to February 2022. The Instagram channel gathered 857 followers (until the date: 28.03.2022). Furthermore, the Instagram channel “mitvergnuegen\_muenchen” (with about 138,000 followers) additionally promoted the course within an Instagram post and story. The radio station “Antenne Bayern” also promoted the course by interviewing one of the team members in a program section. Finally, advertising has also been carried out by the team members through promotion in their respective social environments, e.g., through posts in WhatsApp groups shared with fellow students.

### c. Intervention

The intervention is designed as a 3-week participation in an online course. The online course was accessible through a webpage which

was implemented with the help of the website builder Coachannel. Once the participants started the online course, they could view three lessons a week. The main content of a lesson is presented through an animated video of, on average, five minutes' duration. Some parts of the animated videos covered scientific facts about procrastination and mental well-being. Other parts dealt with practical tips on how procrastination can be decreased and on how to deal with mental strains such as stress. Within the animated videos, the participants were encouraged to apply the practical tips with the help of the course's accompanying workbook. Examples for exercises that should have been carried out in the workbook include denoting long-term goals or to time-plan writing. Furthermore, additional videos on topics such as physical fitness or benefits of meditation were supplied for voluntary use. An elaborate description of the contents of the online course is given in the Supplement.

### d. Questionnaires

To evaluate the effect of the online course on the procrastination behavior and the mental well-being of the participants, two surveys were conducted. One survey had to be filled out before viewing the first lesson and one had to be filled out after completing the last lesson. The two surveys are mostly equal, although in the second survey additional questions were added to capture general feedback with regard to the online course. The two surveys implemented the items from the Pure Procrastination Scale (PPS) (Steel, 2010) and the WHO (Ten) well-being index (Bech, Gudex, and Johansen, 1996). Both are approved in the scientific community (Svartdal and Steel, 2017; Topp et al., 2015). The former aims to evaluate procrastination behavior, the latter aims to evaluate mental well-being.

### e. Outcomes

The PPS encompasses eleven outcomes. Each outcome consists of a categorical statement. The statements are as follows: “I delay making decisions until it's too late.”, “Even after I make a decision I delay acting upon it.”, “I waste a lot of time on trivial matter before getting to the final decisions.”, “In preparation for some deadlines, I often waste time by doing other things.”, “I often find myself performing tasks that I had intended to do days before.”, “I am continually saying ‘I'll do it tomorrow’.”, “I generally delay before starting on work I have to do.”, “I find myself running out of time.”, “I don't get things



done on time.”, “I am not very good at meeting deadlines.”, and “Putting things off till the last minute has cost me money in the past.”

Participants respond to the statements on a 5-point Likert scale, where the options are: “Strongly disagree” (1 point), “Disagree” (2 points), “Neutral” (3 points), “Agree” (4 points), and “Strongly agree” (5 points). The calculation of the total PPS score is simply an addition of the individual points from each question. Therefore, the maximum score is  $5 \times 11 = 55$  points which represents the most pathological procrastination behavior.

The WHO-10 includes eight outcomes which are represented by: “I feel downhearted.”, “I feel calm and peaceful.”, “I feel energetic, active or vigorous.”, “I have been waking up feeling fresh and rested.”, “I have been happy, satisfied, or pleased with my personal life.”, “I have felt eager to tackle my daily tasks.”, “I have felt I could easily handle or cope with any serious problem or major change in my life.”, and “My daily life has been full of things that were interesting to me.”

The prompt to each question is: “Please choose a number on each of the following statements to indicate how often you feel each of them has applied to you in the last week.” The options are given by the four numeric values: 0, 1, 2, and 3. Similarly to the PPS, the points are added up for a total score (the first outcome is inversely weighted). Consequently, the maximum score is  $3 \times 8 = 24$  which indicates the best possible well-being.

#### **f. Data Analysis**

Descriptive data of study participants is presented by mean values, standard deviations (mean  $\pm$  SD) and absolute numbers and percentages, if appropriate. The normal distribution of the outcome parameters was tested with the Shapiro-Wilk test and graphical distribution. To analyze whether the Proactivation course had an effect on procrastination behavior and mental well-being, outcome measures before and after the course were calculated to a mean score and compared with a paired Student t-test. All analyses were performed

with SPSS (V28.0, IBM Corporation), with the level of significance set to two-sided p-values  $< 0.050$  for all tests.

### **3. Results**

#### **a. Study participants**

Overall, 31 participants complete the online course and the pre- and post-survey. Of these participants, 12 (38.7%) were female and all but one participant were students. At the time of participation, 39% were at an age of 18-21 years, 42% at 22-25 years, 16% at 26-29 years, and one participant was over the age of 29 years. The distribution of the educational backgrounds of the participants is displayed in Figure 1.

#### **b. Pure Procrastination Scale (PPS)**

Before starting the intervention, the mean PPS was  $37.71 \pm 6.7$  and decreased to  $33.84 \pm 9.5$  after finishing the course. Therefore, the Proactivation online course significantly reduced the procrastination measured by the PPS ( $t(30) = 5.31$ ,  $p < 0.001$ ); see Figure 2.

Table 1 shows the single domains of the PPS questionnaire before and after the intervention. All but three of the overall eleven domains significantly decrease, indicating reduced procrastination, after the 3-week online course.

#### **c. WHO (Ten) well-being index**

The mean WHO-10 score was  $19.39 \pm 4.0$  before the intervention and  $20.84 \pm 4.1$  after finishing the online course. However, this increase is not statistically significant ( $t(30) = 1.54$ ,  $p = 0.134$ ); see Figure 3.

Table 2 shows the single domains of the WHO (ten) well-being index before and after the intervention. None of the domains significantly changed with the online course.

#### **d. Individual Feedback**

In the post-survey, participants had the option to give feedback on the online course. One question was dedicated to examining which of the methods we provided the participants found especially useful

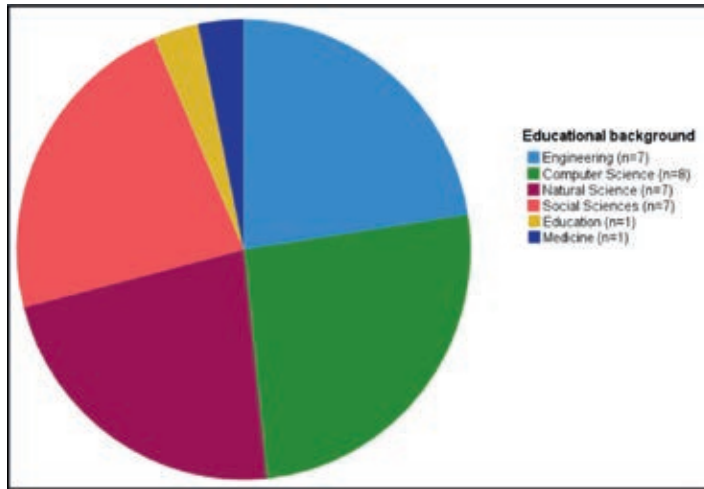


Figure 1: Educational Background of study participants.

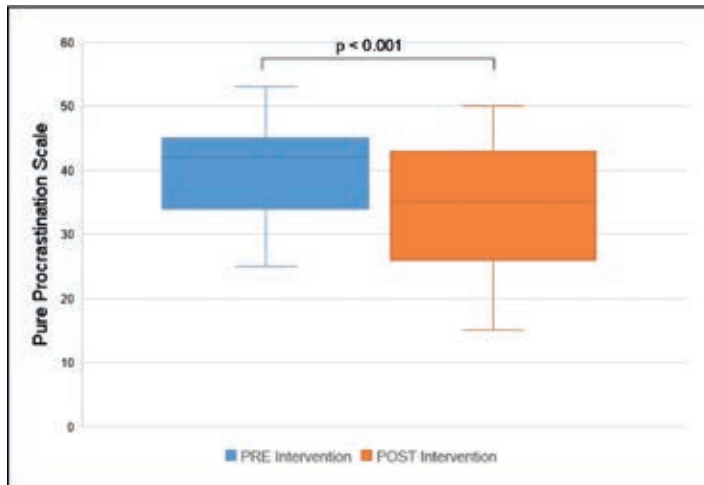


Figure 2: Pure Procrastination Scale before and after Proactivation course.

Domain	PRE-Intervention	POST-Intervention	p-value*
I delay making decisions until it's too late.	3.55 ± 0.925	3.10 ± 1.044	0.320
Even after I make a decision I delay acting upon it.	3.61 ± 0.989	3.35 ± 1.112	0.040
I waste a lot of time on trivial matters before getting to the final decisions.	3.84 ± 1.369	3.23 ± 1.230	0.014
In preparation for some deadlines, I often waste time by doing other things.	4.19 ± 1.046	3.35 ± 1.091	0.001
I often find myself performing tasks that I had intended to do days before.	4.19 ± 0.946	3.35 ± 1.33	0.42
I am continually saying "I'll do it tomorrow".	3.68 ± 1.166	3.06 ± 1.263	0.003
I generally delay before starting on work I have to do.	4.13 ± 0.922	3.45 ± 1.028	< 0.001
I find myself running out of time.	4.26 ± 0.815	3.39 ± 1.202	< 0.001
I don't get things done on time.	3.06 ± 1.181	2.74 ± 1.264	0.030
I am not very good at meeting deadlines.	2.61 ± 1.145	2.13 ± 1.088	< 0.001
Putting things off till the last minute has cost me money in the past.	2.76 ± 1.504	2.66 ± 1.421	0.055

\*Differences calculated by paired t-test. Bold values indicate significant differences.

Table 1: Comparison of PPS-domains pre- and post-intervention.

Category	PRE-Intervention	POST-Intervention	p-value*
I feel downhearted.	2.58 ± 1.089	2.39 ± 1.022	0.518
I feel calm and peaceful.	2.48 ± 1.092	2.71 ± 1.039	0.398
I feel energetic, active or vigorous.	2.45 ± 0.810	2.77 ± 0.845	0.408
I have been waking up feeling fresh and rested.	2.19 ± 0.980	2.42 ± 0.923	0.375
I have been happy, satisfied, or pleased with my personal life.	2.68 ± 1.013	2.84 ± 0.969	0.081
I have felt eager to tackle my daily tasks.	2.29 ± 0.824	2.68 ± 0.945	0.170
I have felt I could easily handle or cope with any serious problem or major change in my life.	2.26 ± 0.930	2.48 ± 0.962	0.061
My daily life has been full of things that were interesting to me.	2.45 ± 0.850	2.55 ± 0.888	0.583

\*Differences calculated by paired t-test.

Table 2: Comparison of WHO (ten) well-being index domains pre- and post-intervention.

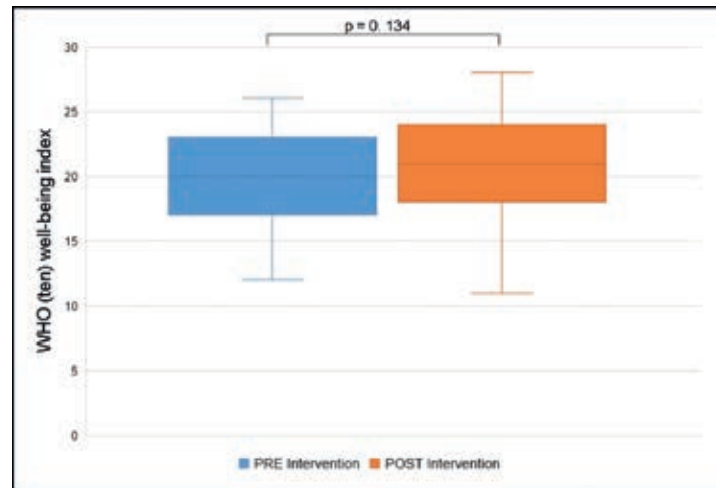


Figure 3:WHO (Ten) well-being index before and after Proactivation course.

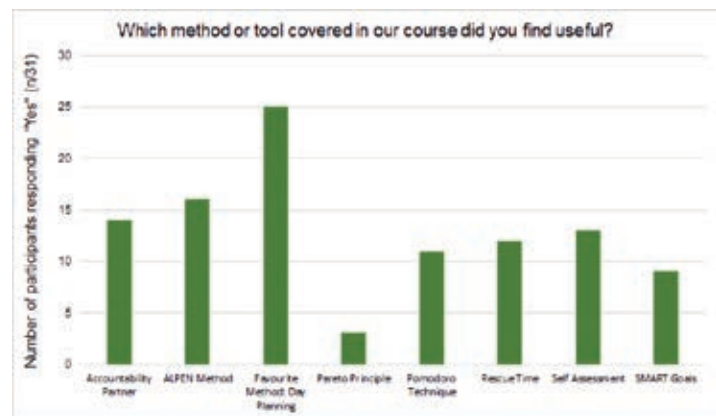


Figure 4: Perceived utility of the techniques covered by the Proactivation course.

(see Figure 4). With the endorsement of around 81% of participants, a proposed method to help with day planning was considered to be of the highest utility. Other proposals, such as reporting to an accountability partner, utilizing the ALPEN method, the Pomodoro technique, the app Rescue Time, self assessment and SMART goals, achieved endorsements of 29% to 52%. The utility of the Pareto principle was deemed useful only for 10% of the participants. The results indicate that in the perception of the participants, hands-on methods which aim to improve time management were most useful to counteract procrastination.

On another feedback question, participants could report on habits they have incorporated into their daily lives (see Figure 5). Interestingly, the course materials about sports, nutrition and sleep which were supplied for voluntary use are, with 90% supporting participants, of very high popularity. Furthermore, 84% participants report that they have acquired the habit of consciously setting up their work environment. 67% of participants also reported that putting distractions, such as their mobile, in another room became part of their daily lives. The usage of background music during learning achieved a percentage of 58%.

#### 4. Discussion

The goal of our study was to determine whether participation in the 3-week online (Proactivation) course has positive effects on procrastination behavior and mental well-being.

The longitudinal analysis showed that the value of the PPS scale reported by the study participants decreased by 5.31 points with significant evidence from the pre- to the post-survey. In particular, the value of eight out of eleven ordinal variables has reduced significantly (see Table 1). The other three ordinal variables which show no significant trends also all decreased on average. We argue that significant results for these three ordinal variables were not achieved due to multiple reasons. On the one hand, the total number of participants ( $n=31$ ) is small which makes it hard to detect minor trends. On the other hand, the considered items of the PPS scale may not

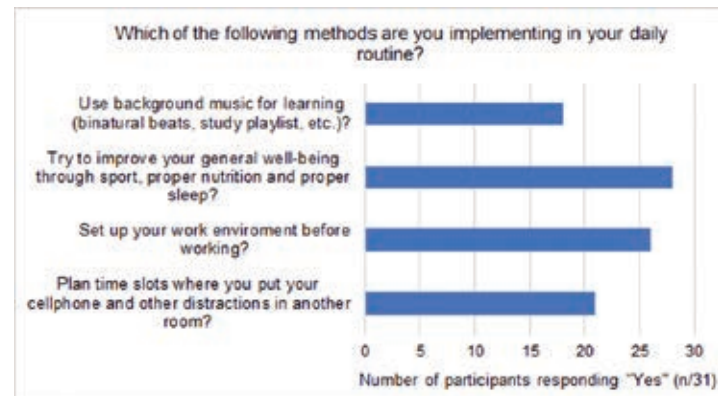


Figure 5: Frequency of people that implemented selected methods into their daily routine.

be of relevance with regard to the intervention design, i.e., influencing the way participants make general decisions was not the focus of the intervention. Thus, Question 1 of the PPS scale may show no significant trend. Furthermore, the participants were surveyed in a three weeks' duration. Therefore, it is probable that effects on items like Question 11 which target long-term experiences could not be covered. Overall, we conclude that the intervention had significantly positive effects on the procrastination behavior of the participants. This finding is in accordance with previous literature. Steel (2007) supports the view that interventions that help participants to exercise the skills of self-regulation, goal setting and time management improve their procrastination behavior. Rozentel et al. (2015) supports the finding that this can readily be achieved with an on-line-based intervention.

Effects of the Proactivation course on the mental well-being of the participants could not be shown with significant evidence. However, all ordinal variables in the WHO (Ten) well-being index increased on average (the inversely weighted Question 1 decreased) (see Table 2). Sirois et al. (2013) notes that it was shown in multiple studies that

feelings of accomplishment and progress fuel mental well-being. Since there is strong evidence that the present intervention improves procrastination behavior, which should also increase these feelings, mental well-being may be increased in the long term. However, until further research this remains conjecture.

### Limitations of the Study

Our study design does not allow us to determine long-term effects of the Proactivation course, as this would require multiple follow-up surveys. Furthermore, the study relies solely on the self-assessment of the participants. After the participants spent time thinking about their procrastination behavior, through participating in the online course, they might have become more inclined to assess that they have now incorporated productive practices more than they actually have. To filter such effects the study would need to be supported with other data collection, e.g., measures that assess their actual (academic) performance pre- and post-intervention. Furthermore, due to no monitoring of the participants completing the online course, it is unclear if the participants engaged with all the content provided. Finally, the participants only cover a small demographic group, i.e., university students of age between 20 and 30. The course might have a different efficacy for other professions or age groups.

### 5. Conclusion

Our three-week course achieved the goal of decreasing procrastination in students measured by the PPS scale while no significant effect on their mental well-being could be measured on the WHO-10 scale.

The educational approach of offering students various methods for reflecting on their work habits, goal setting and time planning has shown to be effective. Furthermore, the intervention considered here, an online course, is easy to maintain, can be made available to a large number of people and is accessible at any time.

## 6. Supplement

### Description of the Proactivation course

#### Week 1

##### ■ Day 1 – Introduction to the course

In this first video, the relevance of the topic of procrastination is explained. Additionally, an introduction to ourselves and an explanation on how the course is structured is given. Furthermore, our workbook is announced, which guides the participant throughout the course (see Figure 6). As a first exercise in the book, the student should reflect on when, where and why they usually find themselves procrastinating.

On Day 1, a supplementary video is offered, where we introduce the accountability partner. The accountability partner serves the purpose of providing light social pressure, whereby the participant shares the goals they have set for themselves for each day or week with their partner.

##### ■ Day 2 – Setting ‘SMART’ Goals

The importance of setting goals is highlighted via a scientific study. It is concluded that setting precise goals, including an accountability partner as well as a reward system provides large benefits with regards to goal achievement. With this, the ‘SMART’ goal technique is introduced as a structure plan for setting goals. The workbook exercise for this video serves as a week planner for goals and subgoals.

##### ■ Day 3 – Using the ‘ALPEN’ method for Time Management

This lesson provides various reasons time management is important: Proper time management can increase efficiency, while decreasing stress through clear planning of one’s day. In addition, a concrete time plan removes the moment-to-moment decision making which often leads to procrastination. In this way, efficiency can be achieved with minimal willpower. As a method for time management, the ‘ALPEN’ method is introduced. A template for setting up a time plan is provided in the workbook.

A supplementary video recommends the free program ‘Rescue-Time’, which tracks digital time usage. The video serves as a tutorial on how to set up the program.

## Week 2

### ■ Day 1 – Procrastination types and reasons

The results from the pilot survey are shown, giving the participant an impression of what other students report as reasons for procrastination. Different types of procrastinators are mentioned, as well as what situations promote procrastination. The corresponding workbook exercise lets the participant match themselves with a procrastinator type and allows them to note their personal ‘time thieves.’

### ■ Day 2 – Improving time planning

The participant is encouraged to analyze their previous time plans with regards to gauging the time each task takes and their overall success level in achieving their daily goals. Reviewing previous time plans should allow for an iterative improvement of the participant’s time planning skills.

### ■ Day 3 – Reducing distractions

The issue of multitasking is presented. With this, the ‘Threaded Cognitive Theory’ is introduced as a reason multitasking has such a negative effect on focus. Encouragement is given to remove the biggest distractor – the smartphone – from the work environment.

In a supplementary video, binaural beats are introduced as a method for improving focus.

## Week 3

### ■ Day 1 – Effects of procrastination

The link between procrastination and stress and anxiety is shown. It is demonstrated what constitutes problematic procrastination. Different negative thought patterns regarding procrastination are exemplified. As a remedy, one should exchange negative thought pattern with positive ones. The first step to this is to notice when negative thoughts arise. The workbook exercise here asks questions on what thoughts are associated with one’s personal procrastination.

### ■ Day 2 – The 80/20 rule and the Pomodoro technique

Participants are encouraged to incorporate the 80/20 into their time plan: Among other things – the 80/20 rule states that 80% of people’s output results from merely 20% of their efforts. When someone finds their personal 20% (the time period where they find themselves most productive), it is recommended that they plan their day accordingly, maximizing work time in that period. Additionally, the Pomodoro technique is introduced as a method for splitting up work cycles into smaller pieces.

### ■ Day 3 – Body, Mind & Procrastination

Four topics are presented: Meditation, nutrition, exercise and sleep. The importance of each is highlighted while establishing a link between them and mental health and focus. Here, the participant is encouraged to watch the provided additional material for each topic. These include: A breathing technique demonstrated by Prof. Dr. Mrinalini Kochupillai from TUM, a TED talk on ‘brain foods’, a self-made workout video and a Youtube video on improving sleep. ■





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# Self-reflection

Starting the TUM: Junge Akademie project in 2020, our time was heavily influenced by the COVID-19 pandemic. In retrospect, this was also our biggest challenge. We met online for the first time and continued to work remotely for the majority of our project.

Despite coming from diverse study backgrounds, we decided on the idea for our project incredibly fast. We are all interested in the broader topic of health as well as the value of technology for a healthy life. So, when our team member Olli introduced us to his plan to tackle procrastination via a program, we were all very excited. After the kick-off weekend, we were joined by Elisa and Daniel – lucky us!

Soon, we also got to know our tutors, Saskia and Ho, and our supervisors, Prof. Dr. Ilona Grunwald and PD Dr. Dr. Alexander Zink. Ilona especially helped us a lot with our pilot study, in which we investigated the procrastination habits of about 800 students. The results showed an astonishing three-quarters of students who tend to procrastinate regularly.

While the tutors and supervisors were always available for questions and support, we were happy to build our project rather independently. Looking back, though, maybe we could have asked for advice more often, particularly regarding organizing our pre- and post-program surveys.

After a couple of months of working together, one of our team members, Anastasia, decided to leave the project due to time constraints. Of course, we were sad, but could understand her decision. Her absence, however, led to some serious time-scheduling trouble, since we underestimated the amount of work we would have to do to compensate for her leaving.

In retrospect, we should have considered this more. The video production especially caused a lot of stress in the group, even leading to some conflict regarding workload distribution and time manage-

ment. Fortunately, we managed to finish the videos and course on time and were able to resolve any tension within the group.

Despite working productively and sticking to our schedule, we all felt a decrease of motivation and connection to the project and the team after some time. This changed on our first offline weekend at the TUM campus. Working together in person for the first time gave our team an enormous motivational boost and brought us a lot closer together. Afterwards, we also started to meet in person for fun instead of work. A phase of hard work followed, including marketing our course and creating the content as well as the website.

Our second time mismanagement concerned our flyers for the “Ersti Woche” at the start of the semester. After disregarding the subject for too long, we had to power through two night sessions to design the flyers and two further stressful days to distribute them. However, we were very happy with the outcome.

On November 1, 2021, we launched our anti-procrastination course. Of course, we were thrilled that all the hard work had paid off and had resulted in the amazing program we had been dreaming of. Following this success, it was very hard to sustain our motivation, since we felt we had already completed the project. This led to yet another stressful phase in which we had to gather the surveys as well as to write the reports. In particular, getting our participants to fill out our post-course surveys led to some issues. Probably because our target group tends to procrastinate, the participation in our survey dropped massively compared to the pre-survey. We solved this by emphasizing the prospect of money for the first 50 participants to complete the surveys, leaving behind the idea of a follow-up survey after 6 weeks.

Taking everything into consideration, it is safe to say we were all able to learn a lot from our time at the Junge Akademie. Starting the project, we had no idea of the incredible journey that lay ahead of



us. Apart from some time management trouble, our biggest challenge was definitely the pandemic. It was incredibly hard to maintain motivation and connection to the project as well as to the group due to social distancing. Also, the weekend seminars being online for a lot of time was rather exhausting and we are sad to have missed the experience of the Junge Akademie weekend getaways. We are

therefore looking forward all the more to the remaining weekends we have ahead of us.

In the end, we want to thank the TUM: Junge Akademie for this experience, connecting us students from different backgrounds and inspiring us to create our amazing project. ■

# Proactivation

## PROJECT GOAL

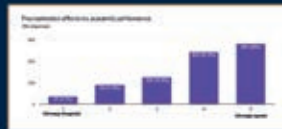
Our goal is to create an anti-procrastination course. For this, we will set up a website comprised of short videos and exercises for students who struggle with procrastination. By helping students reduce procrastination, we want to improve their mental wellbeing.

## STATUS QUO

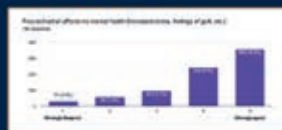
We conducted a pilot study asking 786 students from various fields about their reasons for procrastination, the effect procrastination has on them and their personal solutions to procrastination. Here are our most significant findings:



>> 2/3 of students reported that procrastination affects their academic performance



>> Over 76% of students said that procrastination affects their mental health



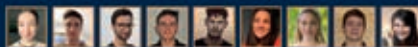
With these results, the extent of this problem of procrastination became even more apparent, encouraging us in our efforts.

## TIMELINE

By October of 2021, we want to finish the production of our content. Subsequently, we will implement the videos so that we can conduct a short testing phase. We aim to launch our website in November, alongside the upcoming winter semester.



## OUR TEAM



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### MEMBERS

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### SUPERVISORS

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## POSTER 1:

During the Kick-Off weekend, Team Proactivation started its research on procrastination. After reading different papers and multiple articles, a pilot study was conducted. Roughly, 800 students took part in our survey and showed that many students struggle with procrastination. The results were shocking and very encouraging at the same time. But we quickly decided that we wanted to be part of a solution. We also asked the question: What tool do the students want to use? An online course, an app, or just regular Instagram posts. The app seemed to be the most convenient tool for the users but after a feasibility analysis, we decided to do an online course. With an online course, we were able to focus more on the content than the front end and back end. Soon after our decisions, we made a timeline and planned the whole project. Down below you can see what the actual timeline looked like.





## POSTER 2:

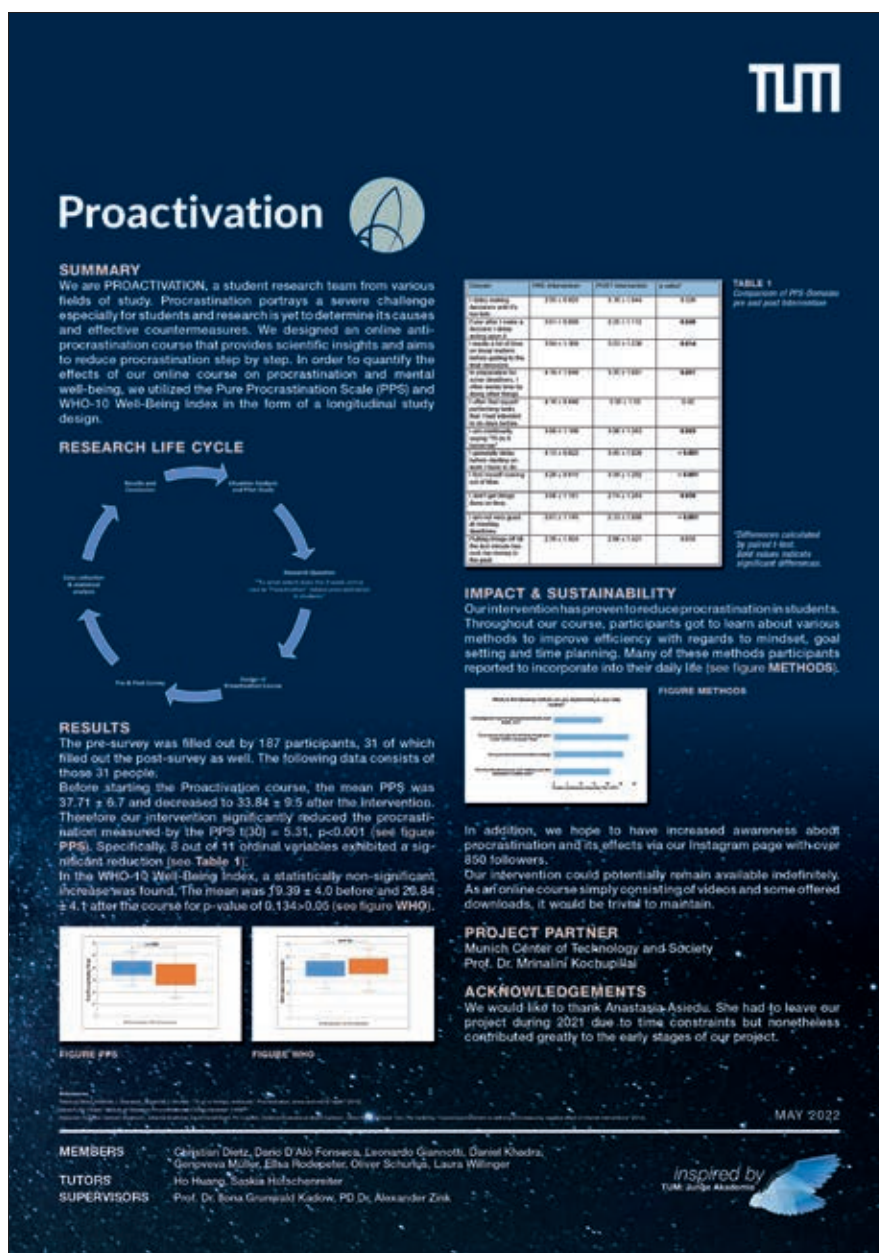
In the summer, the team achieved its greatest progress. On the one hand, Team Proactivation started to concentrate on research. We designed a hypothesis that students have an issue with procrastination and the research question: To what extent does the three-week online course Proactivation reduce procrastination in students? We also decided to use the pre and post-model for our research.

On the other hand, we started to do the marketing. We created an Instagram account where we posted motivational quotes, facts, and memes multiple times a week. We also handed out flyers to first-years and prepared a slide for advertisements during lectures. The Munich Center of Technologies and Society also added Proactivation to their course catalog, which was a great acknowledgment for us. Finally, the website was almost finished and only needed some fine-tuning in the coming weeks. ■



POSTER 3:

Between the second and third poster, the website was finalized and the content was created. The three-week online course consists of nine main videos, which are mostly animated. But the course also consisted of additional material like a self-produced workout video and a mediation video. This time was very stressful because we had to meet the deadline for the release since the course needed to be available at the start of the semester. Luckily, everything worked out and the team managed to pull it off. ■



## POSTER 4:

The last part of the project was to analyze the data. We are very happy that we were able to help our users significantly. Unfortunately, our sample size from the surveys is smaller than the number of people who started and finished the course. That was the biggest struggle for us – to get the users to respond to both surveys. Overall, though, we are very pleased by the result.