

The effect of a positive psychological intervention on academic procrastination

M. E. Ossebaard¹, H. A. Oost², S. van den Heuvel² and C. A. Ossebaard¹

¹ *i2L, Institute for Innovation and Learning, the Netherlands*

² *IVLOS, Utrecht University, the Netherlands*

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Correspondence concerning this article should be addressed to M.E.Ossebaard, Institute for Innovation and Learning, 3524 EN Utrecht, the Netherlands, or E-mail: info@i2L.nl. (Fax number currently not available). Tel. +31302889932

Abstract

We studied the effect of a didactical intervention, integrated in a course program, based upon a cognitive behavioral approach, that aimed at reducing academic procrastination. The intervention is based on the idea from Positive Psychology, that it is valuable in a training setting to stop focusing merely on what must be repaired, and address what is strong and positive in people, thus building on strength. The intervention aims at initiating reflection on students' character strengths and ideals, by providing feedback and asking questions. First, we studied the effect of two course programs in a pre-test/post-test design, using the Dutch version of the APSI. The two course programs had only one difference: the intervention mentioned above. Both course programs help to reduce procrastination behavior, fear of failure and lack of motivation amongst academic procrastinators (using the subscales of the APSI). Second, a comparison of these two course programs shows that the program with the 'positive psychological intervention' turns out to have a larger effect on reducing procrastination behavior than the program without this intervention. No significant differences were observed in the effects on fear of failure and motivation, although a trend appeared for the latter. We conclude that reflection on character strengths and ideals improves the effectiveness of an cognitive behavioral oriented intervention aimed at reducing academic procrastination.

Theory

In the previous decades, interest has grown within the field of psychology for learning and personal development on the basis of reinforcing strong qualities in people. Important work in this area is done by Seligman and Csikszentmihalyi, who initiated a framework for a science of Positive Psychology (2000). In this paper, we study the contribution that Positive Psychology may have to knowledge development concerning the treatment of academic procrastination behavior.

Academic procrastination

Procrastination is the tendency to repeatedly postpone a certain intended course of action, to the point of failing to accomplish this task within a desired time frame (Milgram, 1991; Senecal, 1995). Academic procrastination involves postponing academic tasks, such as writing a paper or preparing or taking an exam. As a consequence of his behavior, the procrastinator suffers from negative emotions (Lay & Schouwenburg, 1993). Moreover, academic procrastination results in sub-optimal academic performances, reflected in course grades and final exam scores (Steel, 2000; Wesley, 1994; Tice & Baumeister, 1997). Academic procrastination is considered to be a widespread problem. Estimates about the prevalence diverge from 20% to 70% (Schouwenburg, 2004) and differ per study domain (preparing an exam, writing a paper, etc.) (Onwuegbuzie, 2000). Besides the negative effect on the student's academic performance, it increases the risk of course drop-out (Wesley, 1994).

In the past two decades, many descriptive studies concerning this phenomenon have been published, presenting the relation between procrastination and other variables. Results of these studies, however, diverge, depending upon which measurement criteria were used (Steel, 2000). In a meta-analysis of 41 studies, academic procrastination is found to correlate positively to (amongst other things) fear of failure, self-handicapping, state and trait anxiety, rebelliousness, depression, shame, and indecision; procrastination relates negatively to self-efficacy, self-confidence (both personal and decisional), self-esteem, work discipline, optimism, and intrinsic motivation (Ferrari, 2004). In another meta-analysis (on 121 studies with 18.196 subjects), the largest negative effects are found in relation to self-efficacy and conscientiousness, and the largest positive effect in relation to self-handicapping (Van Eerde, 2003).

Finally, procrastination is an excellent predictor of academic performance; procrastinators obtain low course grades and low final exam grades (Steel, 2000).

Research focusing on academic procrastination interventions, shows the effectiveness of a cognitive-behavioral approach. In *“Counseling the procrastinator in academic setting”* (Schouwenburg, 2004, p.17), an overview is presented of the features of ten interventions used in several countries (USA, Canada, the Netherlands, Belgium, and Ireland). Each of these interventions has a cognitive component (such as cognitive restructuring or Rational Emotive Therapy or Training (RET; Ellis & Knaus, 2002)). Eight of these interventions also contain a behavioral component, such as monitoring or time-management techniques.

Van Essen et al. (2004) show that, during the seven weeks of their intervention, a combined cognitive behavioral approach results in a decrease of students' procrastination behavior with more than one standard deviation. This implies that, after course participation, the students' procrastination behavior equals the average level of academic procrastination in the total student population.

Positive Psychology

Seligman and Csikszentmihalyi initiated a framework for a science of Positive Psychology (2000). They observed that, since World War II, psychology has become a science that mainly focuses on healing and repairing damage. They conclude that little is known about what makes healthy people flourish. With the introduction of Positive Psychology they aim to catalyze “a change in the focus of psychology from preoccupation only with repairing the worst things in life, to building positive qualities” (p.5).

Within Positive Psychology, ‘character strengths’ are considered an important source for personal growth. Examples of these character strengths are curiosity, open-mindedness, creativity, courage, integrity, kindness, humor, and optimism (Steen et al., 2003). As a process through which character strengths mediate personal growth, Seligman and Peterson (2003) suggest that the positive emotions connected to these strengths can “undo negative emotions”.

Academic Procrastination and Positive Psychology

In the previous decade, research related to Positive Psychology has covered several topics, such as optimism (Carver & Scheier, 2002), authenticity (Harter, 2002), creativity (Simonton, 2002), and perseverance (Peterson & Seligman, 2004). However, a connection with academic procrastination was not found in literature.

We conducted a literature search in four databases: EBSCO Academic Search Elite, PsycINFO, ISI Web of Science, and ERIC (Educational Resources Information Centre). The search, limited to articles published between January 1988 and November 2006, was performed by using the key words 'positive psychology' and 'procrastination'. Almost 5.000 articles were found, 1794 on positive psychology and 3158 on procrastination, of which only three related procrastination explicitly to positive psychology. Two of these three articles appeared to be irrelevant to our research problem; the third one reviewed self-help books without referring to relevant empirical data. We did not find any empirical research published, bridging the gap between Positive Psychology and research on procrastination.

Nevertheless, there are indications that a bridge between intervention specific research into procrastination and Positive Psychology can be useful. O'Callaghan (2004) describes her narrative approach for academic procrastinators. She emphasizes the importance of focusing on the students' possibilities: on what is hopeful instead of problematic.

Research Aim

In Schouwenburg et al. (2004), effective training methods for academic procrastination are described. However, these interventions mainly focus on what is problematic, such as on problematic behavior (Lay, 2004; Van Horebeek et al., 2004), dysfunctional thoughts (Flett et al. 2004), and/or a combination of the above (Van Essen et al., 2004; Mandel, 2004). Sometimes this problem-oriented approach is less dominant; Schubert Walker (2004) stresses the importance of paying attention to experienced successes and the positive pay-off of procrastination.

Focusing on positive experiences that arise *after* behavioral change, is common practice in a behavioral approach. However, this is *not* what we refer to with a positive focus or emphasis on the possibilities of the student. We refer to 'zooming in' on the strong characteristics of a person, on positive intentions or

behavior, independent of the situation and whether or not desirable behavior is shown. This is in line with the idea from Positive Psychology that “treatment is not just fixing what is broken; it is nurturing what is best” (Seligman & Csikszentmihalyi, 2004, p.7).

We conclude that, within the presently known interventions, relatively little attention is paid to the students’ positive character strengths, intentions, and behavior.

Our research aim is to learn what contribution Positive Psychology may have to the treatment of academic procrastination behavior. Academic procrastination is a widespread problem. Estimates about the prevalence diverge from 20% to 70% (Schouwenburg, 2004) and differ per study domain (preparing an exam, writing a paper, etc.) (Onwuegbuzie, 2000). Academic procrastination has a negative effect on the student’s academic performance (Steel, 2000). Moreover, it increases the risk of course drop-out (Wesley, 1994).

Therefore, we formulate the main research question as follows:

Can an intervention based on Positive Psychology contribute to the reduction of academic procrastination?

We examined the effectiveness of an existing course program for academic procrastinators. This method has been based on principles from cognitive-behavioral psychology. The contents of this course program have been described in detail (in Ossebaard & Van den Heuvel (2003)). We extended this course program with a relatively simple intervention, which is based on the principle from Positive Psychology that it is valuable to reinforce what is best in people. In the next paragraph, we will describe the main features of the two course programs as well as, in more detail, the ‘positive psychological’ intervention. We will present the impact of the additional intervention we implemented, and also will describe the reduction in procrastination that is achieved by both course methods.

We formulate the following sub-questions:

1 *What is the effect of a cognitive-behavioral course program on the level of academic procrastination behavior of students?*

2 *What is the effect of a cognitive-behavioral course program, extended with an intervention based on a positive psychological principle, on the level of academic procrastination behavior of students?*

3 *What is the effect of this additional intervention on the level of academic procrastination behavior of students?*

An answer to these questions contributes to knowledge development concerning the treatment of academic procrastination behavior. If it is possible to improve the effects of a course program by means of a relatively small didactical intervention, we consider that a profit.

Furthermore, this research contributes to the field of Positive Psychology. It may support a main principle of Positive Psychology: in a counseling setting, it is valuable to focus on what is strong and positive in people, and to build on strength instead of mainly focusing on what must be repaired.

Method

Context and data collection

In a pre-test/post-test design, we compared the effects of a training based on cognitive behavioral principles (method 'CB' = controlgroup) and the effects of this course plus one additional intervention (=experimental group). This intervention aims at stimulating students to reflect on positive character strengths and ideals (method 'CB+'). The intervention will be described in the next paragraph ('Additional Intervention').

Data were collected from 112 students enrolled in a training on 'Self-management and Studying' at the Institute of Education of Utrecht University (IVLOS). These courses took place in the period of years 2000 to 2004. The two trainers who developed the course programs also lead the courses. Training method CB is based on cognitive-behavioral principles: goal setting, planning techniques, RET (Ellis & Knaus, 2002), monitoring, psycho-education (on procrastination), and relaxation techniques. The training comprised an orientation session aimed at informing and selecting participants, followed by six 2.5 hours sessions. The contents of this training are described in more detail in Van Essen et al. (2004) and in Ossebaard & Van den Heuvel (2003, in Dutch).

Part of the participants are trained by the CB method (training group 1). Another group is trained according to a similar method, but with a more positive focus on characteristics and ideals of the participants (training group 2).

Pre- and post-test data were available of 112 participants (N=112). Sixty-four were placed in training group 1 (57%) and 48 in training group 2 (43%). Table 1 shows a list of training components from both methods (CB and CB+). The additional intervention in program CB+ is described in more detail in the next paragraph.

Additional intervention (training group 2)

The didactical adjustment of the second training group had to comply with several conditions. First, the intervention had to stimulate the awareness of the positive in students, whether applied to personal characteristics or behavior, desires, thoughts, or emotions. Second, implementation in the CB program (training group 1) had to be simple, enabling the comparison of the two training groups and estimating the effect of the additional intervention. Third, there had to be some indications as to the effectiveness of the intervention (i.e. reduction of procrastination).

Multi-level learning. An intervention that appeared to comply with these conditions was found in the theory on Multi-level Learning (MLL) (Korthagen & Vasalos, 2005). Korthagen and Vasalos developed a coaching model for mobilizing an inner drive that removes severe obstacles in the learning process. They indicate that this model is partly based on principles from Positive Psychology. This coaching model is an extension of the ALACT model, that has been used successfully in teacher education (Korthagen & Kessels, 1999). In the ALACT reflection cycle, the student is invited by the trainer to recall and reflect on a problematic experience. Next, the main aspects of this situation are formulated. Then, the student is guided by the trainer in generating alternatives for future action in a similar situation. The final stage of the ALACT cycle is experimenting with a newly chosen alternative. In a coaching setting, this cycle can be repeated in a next session, to further improve the student's teaching skills. During the session, the trainer asks questions and gives feedback on the student's behavior, as well as on his or her thoughts, needs, and emotions evoked in that specific situation. Moreover, the perceived behavior, needs, thoughts, and emotions of other people involved in the situation are also discussed.

Korthagen and Vasalos consider this ALACT model to be inadequate when persistent learning obstacles exist (2005). For this reason, the ALACT reflection cycle has been extended to the MLL model, in which reflection is further extended to what is called the person's 'deeper inner layers'. These are a person's talents, his identity (beliefs concerning one's self-image), and the level of 'mission'. A person's character strengths and life goals, such as how one wishes to relate to people and to the world one lives in, are features that appear at the mission level.

For a thorough description of the MLL method, we refer to Korthagen and Vasalos (2005). We will limit our description here to what we consider (within the framework of this research) as the two most important and useful adaptations with respect to the ALACT model:

1) Students are invited to reflect on their character strengths, in order to enhance awareness of these strengths and to help them value these personal qualities. According to Korthagen and Vasalos, this is necessary to solve persistent learning obstacles.

2) During the first phase of the reflection cycle, a problematic experience is used as a starting point.

However, the focus is shifted rather rapidly towards the student's ideals and inner needs. So even though a problematic situation is, once again, a first step of the intervention (like it was in ALACT), it is granted little emphasis. In MLL, regaining contact with one's ideals is of dominant importance in this first phase. Korthagen and Vasalos (2005) use the words 'ideal situation' to refer to an ideal the trainee is anxious to create. In MLL theory, this is closely related to the level of identity and the mission level (what one really wants in life). However, in this paper we refer to 'ideals' as a student's response to the question "What do (or did) you really want?". We do not distinguish between goals at a behavioral level (e.g. "I want to read chapter 5 before the end of the week", identity level (e.g. "I want to be a conscientious student"), or life-mission level (e.g. "I want to relate respectfully to people and the world around me").

The two trainers who developed the course program 'Self-management and Studying' (training group 1), were both trained in MLL methodology by Korthagen and Vasalos. In this training, apart from focusing on learning the coaching model, the professional and personal development of the trainers themselves is also an important aspect (including becoming aware of their character strengths and ideals). On the basis of their experiences with this MLL training and according to their own professional insight and capacity,

they derived didactical adaptations from the MLL methodology, which were then implemented into the existing course 'Self-management and Studying' (trainings group 1). This way, the program CB+ for training group 2 was created.

The intervention we derived from MLL can be summarized as 'asking questions (both verbally and in written assignments) and providing feedback to students concerning their personal qualities and their personal ideals'. We will further refer to this as 'positive person-oriented reflection'. Thus, the student is guided to focus his attention on his character strengths and ideals. Furthermore, we assume that this will lead to awareness of personal character strengths and ideals (fig. 1).

[insert figure 1 here]

The following didactical adaptations have been introduced for training group 2:

1) A written homework assignment (see appendix). This assignment has to be completed every week in between two sessions. Before each meeting, the students from training group 2 complete a questionnaire, looking back on the previous week. The questionnaire's questions have been formulated by the trainers, according to what they believe is an adequate reflection of questions from the MLL coaching model. These questions invoke students to reflect on their character strengths and ideals. At the start of each course meeting, the group discusses experiences from the past week based on these completed questionnaires.

Although in training group 1 guided reflection by means of home assignments is also used, there are some differences. The questionnaires used in training group 1 contain questions derived from the phases of the RET model. The weekly assignment used in training group 2 differs from this 'RET questionnaire' in two ways. First, there are questions that help to focus attention on what is positive instead of problematic; positive reflection is stimulated at the behavioral level, on the one hand, ("What went well? What were strong points in your studying behavior?") and at personal level, on the other ("What character strengths do you recognize?"). This is followed by asking the question "How does it feel to realize that you possess these character strengths?" The reason for asking this question is that one will experience a

positive feeling, with which the awareness of the character strengths is enhanced at that moment (A. Vasalos, personal communication, April 4, 2004).

A second difference is that students are explicitly asked what they really wanted to achieve. This question is answered during the meeting preceding the week the student reflects on.

2) Additional interventions during the meetings: asking questions and providing feedback on character strengths and ideals:

- the trainer asks questions concerning the participants' character strengths (e.g. "What character strength do you recognize in yourself?") and ideals (e.g. "What did you really want to achieve?").

-the trainer gives feedback on the students' character strengths that she recognises (e.g. "I notice a strong perseverance in you when you tell us about your experience") and on perceived ideals (e.g. "So what you really wanted was feeling self-confident and relaxed while taking the exam").

-the trainer invites participants to give such feedback to one another.

These interventions are provided during group discussions. Typical behavior that invokes an invitation, question or remark by the trainer, is when a student shares a (past week's) experience with the other group members. Reflection on ideals is invoked 1) whenever a student is so caught up in a problem, that he continues fixing attention to what has been problematic in the experience and 2) whenever a student shares a desired intention or goal. Reflection on character strengths is less bound to certain types of student behavior, and can be given whenever the trainer notices a certain strength in a student.

During the first meeting, participants are provided with background information on character strengths, ideals, and the value of being aware of these. The adaptations mentioned above are integrated in course program CB, thus creating program CB+. However, the course length of both training groups is equal.

The reason why this new program does not take up more hours than the original program CB, is the fact that, first, homework assignments are carried out in between sessions. Second, both feedback and questions are given throughout the course whenever the trainers think it is relevant and useful to do so.

Part of the time, originally used for, for instance, problem definition or searching for solutions, is now used to reflect on character strengths and ideals.

Table 1 shows the similarities and differences between the two course programs CB and CB+.

[Insert table 1 here]

Measurements

The procrastination of the participants has been measured using the APSI: 'Academic Procrastination as State Inventory' (Schouwenburg, 1994). We chose the APSI because we needed a measure that is 1) suitable for measuring academic procrastination as state at two defined moments in time (pre- and posttest), 2) valid and reliable and 3) Dutch. The APSI is the only measure that fulfills all three criteria. The APSI is a Dutch questionnaire that measures *state* procrastination, in the week preceding the moment the questionnaire is completed. A score on this APSI scale thus indicates a *current* level of procrastination behavior (Schouwenburg, 2004, p.4). It is both valid and reliable and has been the measure of choice in Dutch studies of this kind (Buchman and Schouwenburg, 2004).

The total APSI score is the sum of three subscale factors: fear of failure, lack of motivation, and dilatory study behavior, that together determine the level of state procrastination. Each factor has a rough score, that can be expressed in stanines (Schouwenburg, 1994). The factors can be considered both as subscale scores and in consistency with the two other factors. In this study we will use the rough scores on the total APSI score. We will also present the scores on the subscales fear of failure, lack of motivation, and dilatory study behavior.

Participants were asked to complete the APSI at the beginning of the first orientation session (= pre-test value) and, once again, at the end of the course (= post-test value). Of a total of 183 students participating in 19 courses; 112 students (61%) completed both pre and posttest (N=112): 71 students (39%) failed to (partly) complete the questionnaires pre-test, post-test or both.

Group composition

We examined the pretest value of the variables, the distribution of men and women, and the distribution of scientific discipline of the sample for both groups.

First, both training groups start at comparable APSI levels: pre-test APSI scores do not differ significantly (Total APSI: $F(df1.110)=0.23$, $p=0.63$; Dilatory Study Behavior: $F(df1.110)=0.01$, $p=0.94$; Fear of failure: $F(df1.110)=0.56$, $p=0.46$; and Lack of motivation: $F(df1.110)=0.00$, $p=0.97$).

Second, a binomial test was used to compare the proportion of participating women and men in the population ($N=112$) to an equal distribution. The zero hypothesis, (the proportion of women and men being equal) was rejected ($p<0.01$). Next, the proportion of participating women and men in respectively training group 1 and training group 2 have been compared with the distribution found in literature [Van Eerde, 2004, p.32]: 63% women and 37% men. The zero hypothesis (the proportion of women being 63%), was neither rejected in the first training group (63%), nor in the second training group (67%). With a reliability of 99%, it has been determined that neither training group deviates significantly from the population distribution (according to Van Eerde, 2004). We conclude that the group composition with regard to gender is a good reflection of what is to be expected for this type of problem.

Third, a χ^2 -test has been used to examine whether the disciplinary origin of the participants (i.e. the science area) in both training groups corresponds to the population distribution. Since we have found no information in literature on the disciplinary population distribution, we used the frequency distribution of the two training groups together (table 2) as a reference. We compared the disciplinary frequency distribution in the first training group to that of the population. Differences did not appear to be significant ($\chi^2= 3.44$, $df=3$, $p=0.33$). The same comparison was made between training group 2 and the total group participants. No significant differences exist here either ($\chi^2= 4.58$, $df=3$, $p=0.21$).

[Insert Table 2 here]

Data analysis

First of all, in order to gain insight into the effect of the two separate course programs for training group 1 (CB) and 2 (CB+), the following hypotheses have been tested:

- 1 A course program, based on a cognitive behavioral approach (training group 1), leads to a reduction of academic procrastination.

2 A course program based on a cognitive-behavioral approach and extended with 'positive person-oriented reflection' (training group 2), leads to a reduction of academic procrastination.

In order to test the effect of the additional intervention, we formulate the following hypothesis:

3 The intervention 'positive person-oriented reflection' results in a significantly larger reduction of students' procrastination in training group 2 than in group 1.

An ANOVA for repeated measures was carried out for the summed APSI score (we will refer to as 'Total APSI') and for the separate scores for the subscales Dilatory Study Behavior, Lack of motivation, and Fear of failure. Paired comparisons of the separate scores were carried out if allowed.

Results

The results of the ANOVA for repeated measures are shown in Table 3 (pre-post = pre- and post-test; method = didactical method (=course program), variables = APSI variables).

Pre- and post-tests differed significantly ($F(df1.110)=166.4, p<0.00$). Separate ANOVAs for repeated measures demonstrate this difference for each of the variables (Total APSI, Dilatory Study Behavior, Lack of motivation, and Fear of failure): post-test scores are lower than pre-test scores. In figures 2a to 2d, the effect is shown for both training groups.

[insert table 3 here]

[insert figures 2a to 2d here]

There is a significant interaction between pre-/post-test and training group ($F(df1.110)=4.04, p<0.05$): the effect of pre-/post-test differs per training group. This difference occurs for the variables Total APSI ($F(df1.110)=4.2, p<0.05$) and the subscale Dilatory Study Behavior ($F(df1.110)=4.0, p<0.05$). Fear of failure and Lack of motivation do not differ significantly ($F(df1.110)=0.8, p=0.39$ and $F(df1.110)=3.7, p=0.06$), respectively). However, a trend may be present for Lack of motivation.

The effects of training group 2 are larger than those of training group 1 for variables Total APSI and Dilatory Study Behavior (see fig. 2e and 2f).

[insert figures 2e and 2f here]

It can be stated that all hypotheses are supported by the data. Both a training based on cognitive-behavioral principles (training group 1) and the training with 'positive person-oriented reflection' (training group 2) have positive effects on procrastination (as measured with APSI Total and Dilatory Study Behavior scores). Moreover, the addition of this didactical intervention in the second training group leads to significantly lower scores on procrastination (as measured with Total APSI and Dilatory Study Behavior scores).

Conclusion and discussion

In this paper, we showed that it is possible to adapt and improve an (effective) intervention program for academic procrastination by means of just a simple didactical intervention we called 'positive person-oriented reflection'. This intervention helps to shift focus from a (mere) problem-oriented approach towards one that structurally emphasizes the importance of focusing on the positive: one's character strengths and personal ideals. The intervention can be easily implemented in the existing program format. Addition of such intervention helps academic procrastinators to 'get to work'. An effect on the variables 'fear of failure' and 'lack of motivation' has not been found, although a trend may occur for the latter. We will next discuss possible explanations for the effect that was found.

First, we wonder whether the impact found may purely be attributed to the intervention described, or that alternative explanations are plausible. We examined whether the impact can be a consequence of a difference in group composition with regard to gender, scientific discipline, or pre-test level on the variables. We showed earlier (see section 'group composition') that this is not the case.

An alternative explanation may be that the trainers have become more experienced throughout the years, and that the increased course effect is simply a consequence of their improved teaching skills. We would then expect an increase in course effect to be observed already throughout the first years, when the first

course program CB was the only program practiced. However, when we look at the results of the 12 separate course groups that make up training group 1, no increase in the reduction of procrastination can be found (from a linear trend line, Fig. 3). We conclude that the trainers did not master the course program CB better over time.

[insert figure 3 here]

A second question concerns what has actually been learned. We examined if systematic reflection on character strengths and ideals, applied in a behavioral-cognitive course, has an impact on the reduction of academic procrastination. We did not measure whether a stronger awareness of these strengths and ideals has arisen as a result of our intervention. The learning process as presented in fig.1, is an assumption. However, after course participation we asked students of training group 2 (n=48) to answer (in a self-report questionnaire) the question "To what extent do you think you obtained more insight into your own character strengths?" on a Likert-scale of 1 to 5 (1 = no increase of insight at all, and 5 = very large increase). The average score was 3.5. We consider this an indication that, at least to some extent, more awareness of one's character strengths has arisen. We will study this more closely in follow-up studies.

A third question we ask ourselves is whether explanatory theory exists concerning how the process of 'positive person-oriented reflection' might help to break through the pattern of procrastination. In literature we found a number of indications to formulate some hypotheses. To our opinion, it is of importance that the intervention has been added to a course program, in which reflection on behavior and thoughts already are focus points. It seems that adding 'positive reflection' on a more personal level helps participants to create a more complete image of themselves and the situation they are in. Reflection on character strengths adds a positive picture of the self and the situation, to the negative picture that results from fixation on negative behavior and negative ideas (irrational beliefs).

We hypothesize that this leads to a reduction of procrastination behavior by means of a process of increasing self-efficacy and self-esteem. The positive picture the student forms concerning himself and

the situation he is in seems to help him to feel better about himself. Furthermore, it seems to add to a sense of being able to handle whatever task will need to be dealt with. With this increased sense of self-efficacy, we expect the need to procrastinate to decrease.

Literature on procrastination research offers some support for this hypothesis. A negative correlation exists between academic procrastination behavior, on the one hand, and self-efficacy and feelings of self-worth, on the other. The importance of self-image (a combination of self-esteem and self-efficacy) in relation to procrastination has been shown in a meta-analysis of 121 studies (Van Eerde, 2003), showing a large effect for both self-efficacy ($r=-0.44$) and self-esteem ($r=-0.28$).

Wolters (2003) also shows a negative relation between procrastination and self-efficacy beliefs in college students. As an educational implication he mentions that interventions designed to reduce students' procrastination behavior might become more successful if they focus on increasing students' self-efficacy. It has also been shown (Van Essen et al., 2004) that a cognitive-behavioral course program for academic procrastinators leads to an increase in self-efficacy. A possible explanation for the impact of the added intervention we investigated might be found in the following hypothesis: focusing attention on the student's character strengths and ideals leads to an increased awareness of these positive aspects, which will lead to an enlarged sense of self-efficacy. Highly self-efficacious people have intrinsic interest and deep engrossment in activities they are involved in; their belief in their capacities helps to begin and continue a task (Bandura, 1989). We consider this an interesting hypothesis for future research.

This research shows that it is possible to implement a relatively simple didactical intervention into an existing course program for academic procrastination and, by doing so, increasing its positive effect on reducing academic procrastination. Thus, it turns out to be possible and simple to help academic students to improve regulative skills and support the academic learning process.

Furthermore, the simplicity of the intervention involves the fact that the course program requires an equal amount of time as the original course program; part of the intervention involves homework assignments, and part of it are remarks and questions given throughout the course. In the original course program, some of the time spent on the latter would, for instance, be spent on identifying the problem

more closely. Therefore, no major alterations to the original program are necessary. Although this may seem simple in terms of behavior, this must not be interpreted as a trick, like 'when we tell students positive things about themselves, they will start working (harder)'. In terms of trainer behavior, a completely different mindset is required in order to make this intervention work. One must observe students differently and relate to students in a different way. Instead of focusing on problem behavior, or searching for solutions, the trainer must try to see the ideals and character strengths in a student, even when this person is completely caught up in the problem. Part of the intervention are remarks and questions that are given throughout the course, *whenever trainers think it is relevant and helpful to do so*. This implies that a) trainers must stay focused throughout the course on observing character strengths and ideals, b) decide whether to comment on this and c) decide on how to do so. We believe that this, first of all, requires specific skills. For instance, when people are negatively caught up in a problem, it can be difficult to really see their ideals or character strengths 'shine through'. Second, it requires the belief that this positive approach can be helpful. Third, we are convinced that students will not benefit from positive person-oriented reflection unless trainers are sincere when it comes to the feedback given and questions asked. The interaction with the students must be based on authenticity in order to make this work. This also requires a different attitude of the trainer towards herself; she must stay tuned onto her own feelings and thoughts, in order to relate to the participants in an authentic way.

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Appendix

Weekly reflection-report

What was it you wanted to achieve last week? (completed at the beginning of the week)

What went well? What were strong points in your study behavior?

What character strengths can you recognize?

As you might not be used to looking at yourself in terms of character strengths, we provide you with a few examples to inspire you: creativity, wisdom, discernment, involvement, care, openness, sensitivity, carefulness, curiosity, initiative, strength, determination, (self)confidence, independence, courage, etc.

How does it feel to realize that you possess these character strengths?

What did not go well last week?

Why didn't you succeed in doing what you had planned to do?

Did you, in any way, inhibit yourself, e.g. by having certain beliefs?

How does it feel to inhibit yourself in this way?

What consequences could it have for you (and others) if you continue to do so?

What might happen to you (and others) if you stop doing this?

Now look back once more on what you wanted to achieve during the past week. Do you see any possibilities for making changes? Try to mobilize your character strengths as much as possible.

Which one(s) will you experiment with next week? Set one or a few concrete objectives for next week.

Table 1

Main features of course programs CB and CB+. (Bold = differences between programs.)

Course features	Program 'CB' <i>(training group 1)</i>	Program 'CB+' <i>(training group 2)</i>
Psycho-education	+	+
Time-management techniques	+	+
- goal setting	+	+
- weekly planning	+	+
- long term planning	+	+
RET	+	+
Monitoring techniques	+	+
Stimulus controle techniques	+	+
Relaxation techniques	+	+
Study methods (briefly)	+	+
'Positive person-oriented reflection'	-	+
- asking questions / giving feedback on character strengths	-	+
- asking questions / giving feedback on ideals	-	+
Homework assignments:	+	+
- time-management	+	+
- monitoring	+	+
- relaxation techniques	+	+
- reading background information	+	+
- RET-based questionnaire	+	+
- MLL-based questionnaire	-	+

Table 2

Participants origin of science area or discipline (N=112).

Scientific area	Frequency	Percentage
Humanities	30	26.8
Natural sciences	10	8.9
Social Sciences	44	39.3
Biomedical	28	25.0
Total	112	100.0

Table 3

ANOVA for repeated measures. P-values are adjusted by Huynh/Feldt epsilons.

Source	Sphericity correction	df	Mean square	F.	Sig.
Pre-post	None	1	32942	166.40	0.000
	Huynh-Feldt	1	32942	166.40	0.000
Pre-post * method	None	1	799.54	4.04	0.047
	Huynh-Feldt	1	799.54	4.04	0.047
Error (pre-post)	None	110	197.97		
	Huynh-Feldt	110	197.97		
Variables	None	3	178591.04	2267.80	0.000
	Huynh-Feldt	1.88	284357.18	2267.80	0.000
Variables * method	None	3	104.26	1.32	0.267
	Huynh-Feldt	1.88	166.01	1.32	0.267
Error (Variables)	None	330	78.75		
	Huynh-Feldt	207.26	125.39		

Figure Captions

Figure 1: *The assumed process initiated by the additional intervention of training group 2 (program CB+)*

Figure 2a: *Total APSI score per training group and test (pre-post).*

Figure 2b: *Dilatory Study Behavior (APSI subscale score) per training group and test (pre-post).*

Figure 2c: *Fear of Failure (APSI subscale score) per training group and test (pre-post).*

Figure 2d: *Lack of Motivation (APSI subscale score) per training group and test (pre-post).*

Figure 2e: *Total APSI score per training group and test (pre-post).*

Figure 2f: *Dilatory Study Behavior (APSI subscale score) per training group and test (pre-post).*

Figure 3: *Effect on subscale variable Dilatory Study Behavior for the 12 course groups in training group 1.*

Trend line (linear) shows no structural improvement of effect over time.

Figure 1: *The assumed process initiated by the additional intervention of training group 2 (program CB+)*

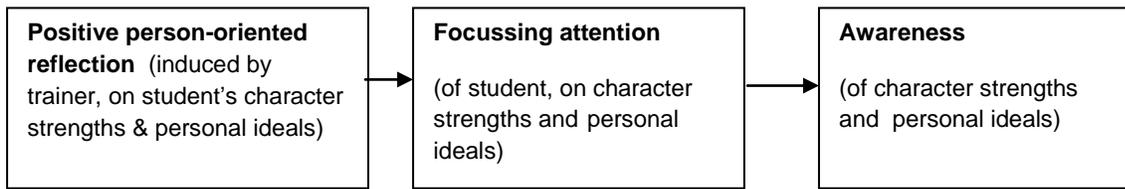


Figure 2a: Total APSI score per training group and test (pre-post).

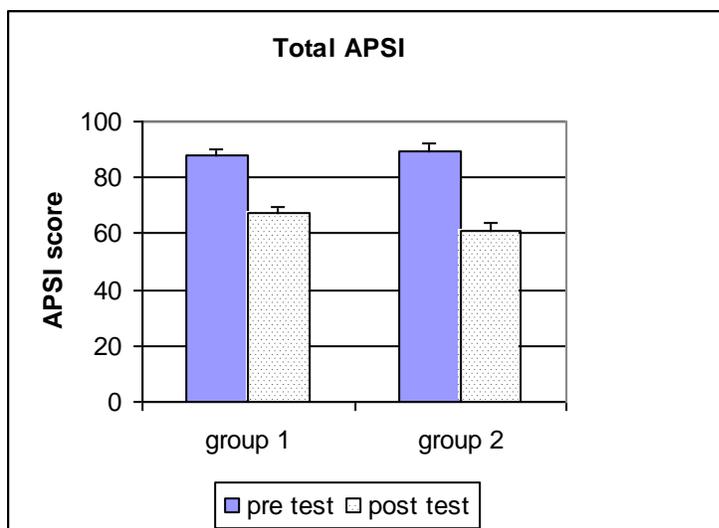


Figure 2b: Dilatory Study Behavior (APSI subscale score) per training group and test (pre-post).

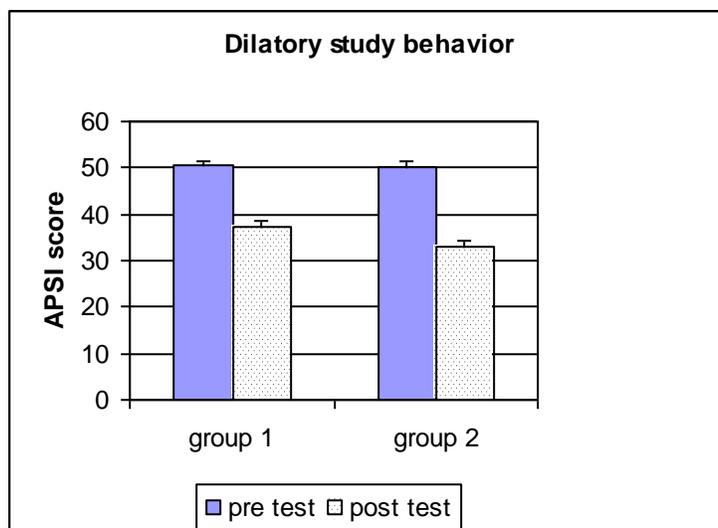


Figure 2c: *Fear of Failure (APSI subscale score) per training group and test (pre-post).*

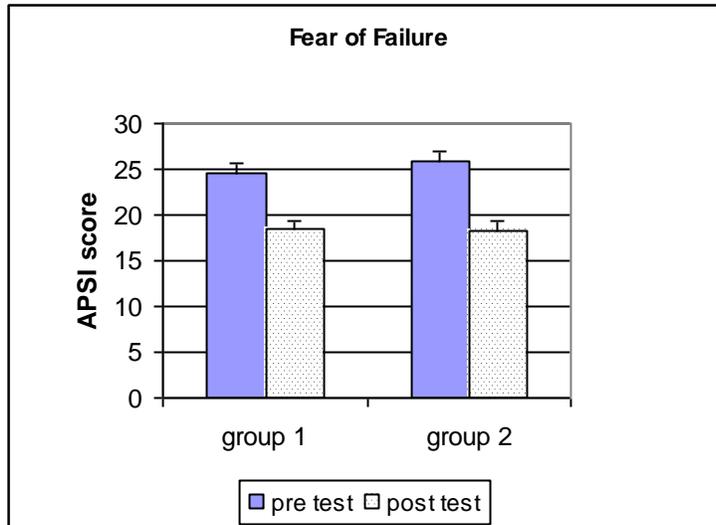


Figure 2d. *Lack of Motivation (APSI subscale score) per training group and test (pre-post).*

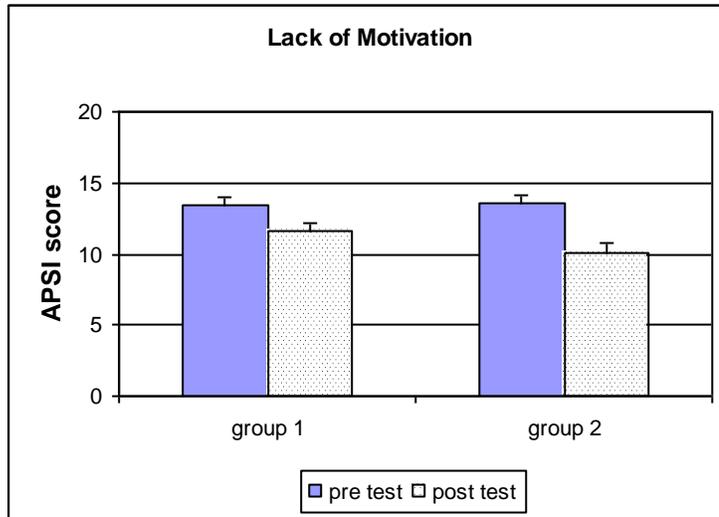


Figure 2e: Total APSI score per test (pre-post) and training group.

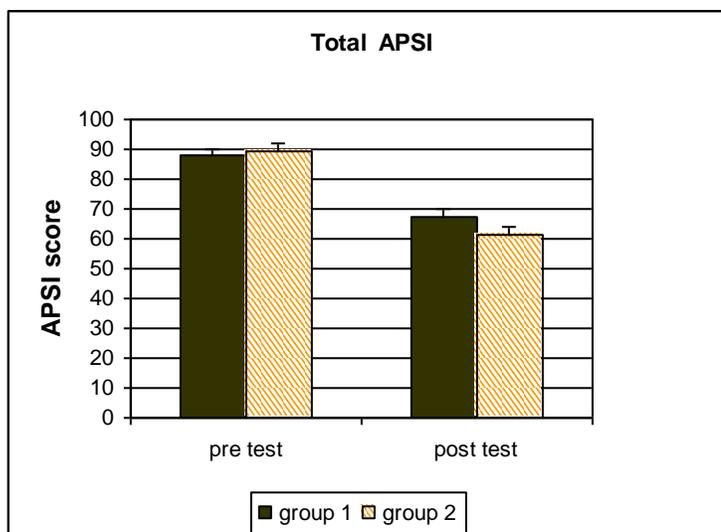


Figure 2f: Dilatory Study Behavior (APSI subscale score) per test (pre-post) and training group

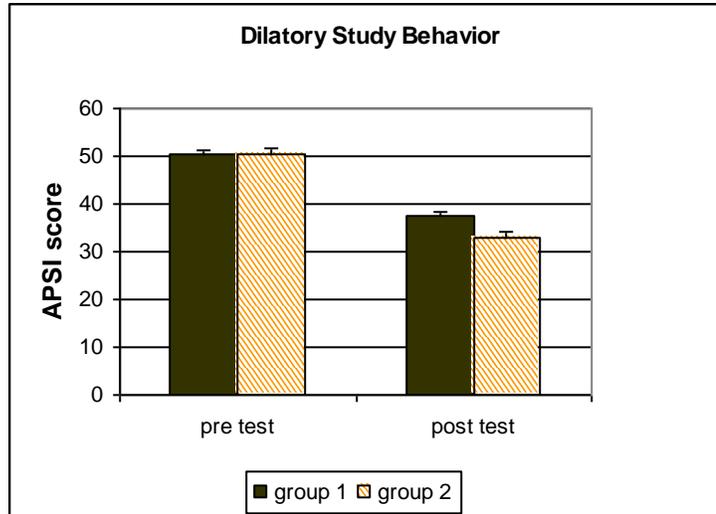
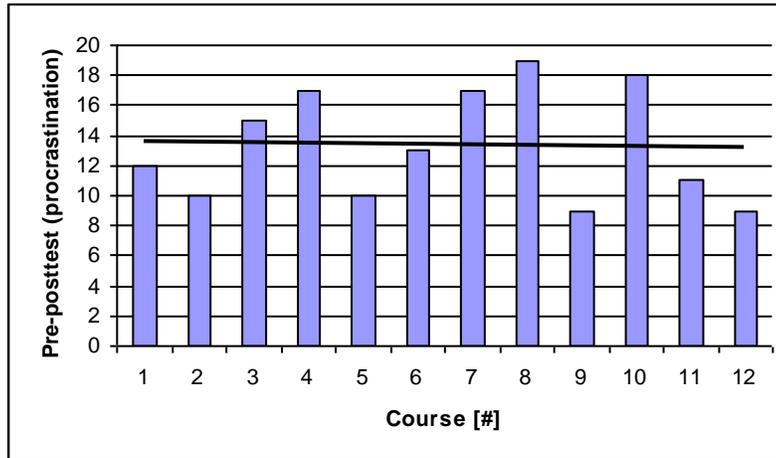


Figure 3: Effect on subscale variable Dilatory Study Behavior for the 12 course groups in training group 1.

Trend line (linear) shows no structural improvement of effect over time



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