



# Promoting Well-Being in Students Through an Art-of-Living Intervention

## Developing an Online Training for Eighth and Ninth Graders

Rebekka Tavakoli, Ronja Müller, Enya Jeske, Nina Schäfbuch, and Bernhard Schmitz

Department of Psychology, Technical University Darmstadt, Germany

**Abstract:** During secondary school, students' well-being is challenged in manifold ways and declines continuously. To address this issue, we designed and evaluated a six-day online art-of-living intervention to foster eighth and ninth graders' ( $N = 69$ ) well-being. Art-of-living (AoL) is based on empirical evidence and conceptualizes strategies that lead to well-being. We tested the effectiveness of the AoL training and investigated the possible contribution of body-related AoL exercises to cognitive exercises by comparing two intervention groups (cognitive training vs. cognitive and body-focused training) and a waitlist control group. Levels of AoL and well-being at pretest, posttest, and two-week follow-up showed that both significantly increased in the intervention groups. No significant differences were found between the cognitive and combined training. We discuss methodological issues of the study and propose that the approach to enhance student well-being by using art-of-living exercises is fruitful for application in school and should be explored further.

**Keywords:** art-of-living, well-being, students, training, online intervention

Long before the COVID-19 pandemic drew our attention to adolescent mental health and well-being (i.e., “optimal psychological functioning and experience,” Ryan & Deci, 2001, p. 142), plenty of studies using various well-being indicators (e.g., subjective well-being: Herke et al., 2019; happiness in school: Hascher & Hagenauer, 2010; somatic complaints: Hansen et al., 2018) have demonstrated that well-being continuously decreases during the years spent in school (Herke et al., 2019). Pointing to the role the school might play in this trend, adolescents report less satisfaction in school than in other life domains (Huebner et al., 2005). Since well-being has such an important impact on all life domains, including academic attainment (e.g., Adler, 2017), we consider it necessary that programs to foster well-being are implemented in educational practice and beyond. To contribute to augmenting the means of promoting well-being, we investigated a new approach to well-being interventions for adolescents, which builds on the positive impact of art-of-living on well-being. Art-of-living is a psychological concept providing learnable strategies which lead to well-being (Schmitz, 2016). Empirical studies support the notion that the application and adoption of art-of-living behaviors and attitudes increase well-being, and that art-of-living can be trained using tailored exercises (Lang & Schmitz, 2016; Schmitz, 2016). The primary objective of the study was to examine whether a short-term

art-of-living intervention delivered online can enhance art-of-living and, consequently, the well-being of eighth and ninth graders. Second, we examined whether the focus on different categories of art-of-living components (cognitive or body-related) influences the effectiveness of the training.

### Well-Being in Secondary School Students

For many years, studies have shown that especially in secondary school (in Germany including grades 5–13, usually ages 10–19), students face manifold challenges during adolescence, which can strain their well-being. Already more than 40 years ago, Bäuerle and Kury (1980) demonstrated that eighth and ninth graders in German schools suffered from school-related anxiety (55%), sleeping problems (54%), and frequent headaches (21%). More recent studies continue to show that students deal with a number of well-being-related issues such as low motivation (Tuominen-Soini et al., 2008), alienation (Hascher & Hagenauer, 2010), chronic stress (Schraml et al., 2012), and even depression (Salmela-Aro et al., 2009). In 2017, Hansen and colleagues (2018) found in a representative survey that 43% of all German students from grade 5 to 10 ( $N = 7,000$ ) suffered from distress. Similarly, Herke and colleagues (2019) have recorded in a longitudinal study a significant

and steady decrease in subjective well-being in German students from 5th to 12th grade. This adds to and is facilitated by challenging physical as well as psychological developmental changes during puberty, which can bring about increases in negative emotions, social insecurity, and anxiety (Mendle, 2014).

Concluding, student well-being is at risk. It has come to a point where psychologists have introduced the term “school burnout” (Salmela-Aro et al., 2008). Working against these problematic trends is of special importance since well-being positively impacts all life domains, ranging from logical reasoning (Edlinger & Hascher, 2008) and academic performance (Adler, 2017; Kaya & Erdem, 2021; OECD, 2017) to depression (Carver et al., 2010) and physical health (Diener & Ryan, 2009).

### Well-being Interventions for Students

Fortunately, well-being can be enhanced through training. Lyubomirsky and colleagues (2005) have shown that intentional efforts substantially contribute to our happiness. In the past decades, a number of positive psychological interventions (PPIs) have been proven successful in promoting well-being (for a meta-analysis on PPIs, see Bolier et al., 2013; Sin & Lyubomirsky, 2009), and have found their way into the educational context (e.g., Chodkiewicz & Boyle, 2017). Even single-session and short-term interventions (e.g., Feldman & Dreher, 2012), and online training delivered fully over the Internet (see Bolier & Abello, 2014) have shown promising results. These short-term and online approaches seem very favorable for large-scale applications since their implementation is easy, economical, and time-saving for all involved; providers, schools, as well as participants.

### Art-of-Living – An Alternative Approach to Increasing Well-Being

In this training study, we tested a recent approach to well-being interventions that uses art-of-living exercises to strengthen the participants’ well-being. Art-of-living (AoL) is broadly defined as “all paths leading to well-being” (Schmitz et al., 2021, p. 2). More specifically, AoL is a systematic and evidence-based collection of all intentionally shapeable behaviors and attitudes (also called strategies, Schmitz, 2016) by which well-being can be achieved, summarized in 11 components.

In a cumulative research process which built on sound philosophical research on the art of living or *Lebenskunst* (Schmid, 1998, 2004), explorative qualitative surveys on the aspects relevant to a happy life (Schmitz, 2016), confirmatory factor analyses (Schmitz, 2016; Schmitz et al., 2021), and tests of applicability (e.g., Lang & Schmitz, 2016), the following AoL components have been identified

as the distinctive ways which lead to well-being: *self-determined way of living* (“living according to one’s own convictions”), *self-knowledge* (“awareness of one’s own strengths and weaknesses”), *savoring* (“enjoying the positive aspects of life”), *bodily care* (“paying attention to one’s body”), *positive attitude towards life* (“being optimistic and grateful”), *reflection* (“reflecting on one’s behavior”), *meaning* (“having life goals”), *optimization* (“trying to achieve good results and acting effectively”), *serenity* (“not being easily disconcerted”), *coping* (“the ability to deal with difficult events”), and *social contact* (“having good relationships”, Lang & Schmitz, 2016, p. 280). The AoL subscales correlate with each other, yet all contribute to overall AoL and well-being (Schmitz et al., 2021). For a more thorough introduction to AoL, see Schmitz (2016), and Schmitz and colleagues (2021).

The usefulness of the concept of AoL is supported by a number of advantages, which makes it stand out as a promising framework to promote well-being:

- (1) AoL makes a clear distinction between ways to lead a good life, and possible results of these ways, that is, well-being, which are conceptually different (Veenhoven, 2003). Many established well-being theories fail to make this relevant distinction. For example, the concept of psychological well-being (Ryff, 1989) includes environmental mastery as one psychological well-being component. However, according to AoL theory, environmental mastery is not a well-being component itself but a strategy to achieve well-being (in contrast, a cognitive and emotional state rather than behavior). If someone is able to master their environment, it will increase their well-being as a result.
- (2) AoL is more comprehensive and differentiated than other models with similar intentions. For example, psychological capital (Luthans et al., 2015) only includes cognitive components (self-efficacy, optimism, hope, and resilience), and orientations to happiness (Peterson et al., 2005) do not include physical or social aspects. Combining formerly isolated strategies, the purpose of AoL is to offer a “multi-component approach that is integrative and holistic” (Schmitz et al., 2021, p. 12) by aiming at all aspects of well-being. Hence, AoL includes components to foster both hedonic and eudaimonic aspects of well-being (see Ryan & Deci, 2001). While some AoL strategies are targeted at rather hedonic well-being (e.g., savoring; Bryant & Veroff, 2007) and others at rather eudaimonic well-being (e.g., meaning; Steger, 2005), a one-to-one assignment of AoL subscales to one category would be misleading, since due to its holistic approach, some AoL components (e.g., social contacts) serve hedonic as well as eudaimonic well-being aspects. This notion is supported by research suggesting that hedonia and eudaimonia are highly

interrelated depending on the kind of measurement (Biswas-Diener et al., 2009; Huta, 2022).

- (3) A validated instrument to measure current levels of AoL exists. Based on studies of more than 3,400 participants, the Art-of-Living Inventory (Schmitz et al., 2021), available in English and German, has been developed and holds good psychometric properties.
- (4) AoL is actionable and can be trained, for example, using targeted AoL exercises (Schmitz et al., 2018). AoL is concerned with how well-being can be increased, that is, which behaviors to integrate into daily life, which attitudes to stimulate, and which strategies can be helpful in doing so. Empirical research shows that not only can AoL be enhanced through training (Lang & Schmitz, 2016; Schmitz, 2016), but interventions which are designed to enhance AoL have also been effective in fostering well-being. In an intervention study with elementary school students, Lang and Schmitz (2016) demonstrated that increases in AoL lead to increases in the participants' quality of life. The present study elaborates their research.

## The Present Study

Based on the positive effects of AoL on well-being, we developed and evaluated a six-day online training for students to increase their well-being through the strengthening of selected AoL components. Because of the continuous decline of well-being indicators in this age group, eighth and ninth graders (aged 13–15 years) were determined as the target group. For these students, the training is delivered at a point where it is much needed to improve well-being, and at the same time, might prevent a further reduction of well-being (see Herke et al., 2019).

Well-being is viewed in the light of Seligman's (2011) well-established psychological well-being or flourishing theory as five interrelated dimensions, which are *positive emotion, engagement, positive relationships, meaning or purpose in life, and accomplishment* (PERMA). An alteration of this theory specializing in adolescents in school, the EPOCH model of adolescent well-being (Kern et al., 2016), is applied in this study. According to this theory, there are five well-being characteristics in adolescence (*engagement, perseverance, optimism, connectedness, and happiness*) that foster PERMA in later years.

### Investigating Cognitive and Body-Related Art-of-Living

For our short-term intervention, five AoL components were chosen to investigate whether training of these selected components could enhance the participants' total AoL. Correlational studies (Schmitz, 2016) and intervention studies

(Lang & Schmitz, 2016) suggest that the selection of isolated components to increase overall AoL is valid because the components co-vary, meaning that strengthening one factor also leads to the improvement of others. In our study, the selected subscales were *self-determined way of living, self-knowledge, coping, bodily care, and savoring*, some of which achieved positive results in a previous study (Lang & Schmitz, 2016). The selection was based on two main criteria: (1) The components should be particularly relevant to the students' context and helpful in their daily lives, and (2) the selection should include both cognitive and body-related components.

Bodily care and savoring are the only subscales that include the body in their well-being strategies and are thus distinguished from the remaining components. All of the other nine AoL subscales can be labeled as cognitive in a way that they do not concern the care of the body (Lang & Schmitz, 2016). It is assumed that body-focused AoL components tend to increase hedonic aspects of well-being, and most cognitive AoL components rather increase eudaimonic well-being. The fact that AoL includes body-related well-being strategies goes back to the holistic approach of AoL which tries to summarize all paths which lead to a happy life and can be shaped intentionally, and should thus also include the body (Schmitz et al., 2021).

The importance of the physical aspect in psychological well-being has been pointed out in many studies. For example, it has been demonstrated that exercise can decrease depression (North et al., 2008) and stress (Hassmén et al., 2000), and increase psychological well-being (Hayes & Ross, 1986; Fox, 1999). Savoring (Bryant & Veroff, 2007; Smith & Hollinger-Smith, 2015) and relaxation exercises such as breathing techniques (Chandla et al., 2013; Sianoja et al., 2018) as well, have been found to foster well-being. Due to the evident positive influence of body-related activities on well-being, we were interested in investigating whether body-related strategies have an enriching effect in enhancing well-being by introducing two training conditions that differed in the selection of cognitive and body-focused components. The hypothesis is based on the assumption that if the training includes AoL components that addresses a broader spectrum of well-being aspects, overall well-being will increase more as an effect of the training.

### Training Art-of-Living Online

Since AoL is a fairly new concept within positive psychology, there is only a little research to date on the manners of delivering AoL interventions. The present study is one of the first to present an online AoL training with the purpose of increasing student well-being. For our purpose, the most relevant advantages of online interventions are mobility, flexibility, cost-effectiveness (Bolier & Abello, 2014; Parks, 2014), and attractiveness for adolescents

(Feierabend et al. 2019). Students might actually be more motivated to make use of digital learning than traditional learning (Lin et al., 2017). The anonymous nature of online participation can lower the inhibition threshold and thus increase the likeliness of students choosing to take part in the training (Schmitz et al., 2018). Furthermore, the COVID-19 pandemic has shown that online provision can be crucial in times when schools are closed. Successful web-based and application-based PPIs have demonstrated that well-being interventions can be delivered online to benefit from these advantages (Bolier & Abello, 2014; Gander et al., 2016; Liu et al., 2021).

### Research Questions

Concluding, the objectives of this study were twofold. First and foremost, we tested whether a short-term AoL intervention in the form of online training could increase total AoL and, as a consequence, well-being of students. Secondly, we examined whether the inclusion of different categories of AoL components had an influence on the effectiveness of the training. The following hypotheses are examined:

*Hypothesis 1 (H1):* A short-term online AoL training will enhance the well-being of eighth and ninth graders.

*Hypothesis 2 (H2):* A training including body-focused AoL exercises next to cognitive AoL exercises will be more effective in enhancing students' well-being than merely cognitive AoL training.

## Method

### Research Design

We applied a 3 (group)  $\times$  3 (point of measurement) mixed design, with two intervention groups and one wait list control group ( $n = 19$ ). The cognitive group ( $n = 24$ ) received training of only cognitive AoL strategies, while the combined group ( $n = 26$ ) received training of both cognitive and body-focused AoL components. AoL and well-being were measured at three points for the intervention group (pretest, posttest, and two-week follow-up), and two points for the control group (pretest and posttest), as presented in Table 1. The study was approved by the University Ethics Committee.

### Procedure

The participants in the intervention group received their training individually on 6 consecutive days during the intervention period, whereas the participants in the waitlist

control group received all exercises of both intervention groups in the days following the posttest. The first questionnaire (pretest) was filled in 1 day prior to the start of the training. It asked for the participants', as well as their parents' informed consent, demographic data (age, gender, grade, school type, and city of school), and contained the AoL and well-being measures. Starting from the following day, the students received six exercises over a period of six days, which they could access via a separate link that was sent to them by email every morning. The link led them to SoSci Survey, where they could edit and submit the daily exercise. Each of the exercises followed the same structure. First, the exercise of the day was introduced with a characteristic icon and a quotation that led to the topic of the day, followed by a summary of the exercise (see Figures E1–E8 in the Electronic Supplementary Material, ESM 1). Next, each assignment was accompanied by a thematic introduction and instructions. Finally, the students were asked to rate the exercise in terms of meaningfulness (“The exercise was reasonable”), fun (“I enjoyed doing the exercise”), and personal contribution (“The exercise made me realize something”).

The second questionnaire (posttest) was filled in 1 day after the training period and captured the dependent variables and feedback about the training. The feedback was collected to evaluate the perceived quality of the training from the students' viewpoint and to assess whether they really engaged in the intervention.

The third questionnaire (follow-up), testing the dependent variables once more, was completed 2 weeks after the training only by the intervention group as we were interested in whether the predicted effects would persist.

### Participants

A sample of  $N = 69$  German students (78% female) aged from 13 to 15 years ( $M = 13.97$ ,  $SD = 0.54$ ), from eighth ( $n = 53$ ) and ninth ( $n = 16$ ) grade was analyzed. Participants were recruited by (1) contacting school principals and (2) over social media (Instagram and Facebook). The sample was spread over six different federal states of Germany, and three different school types (Gymnasium, 90%; Realschule, 9%; Verbundschule, 1%). After enrolling, the participants were randomly assigned to the cognitive, combined, or control group using a software (<https://www.ultimatesolver.com>). The participant characteristics per the condition can be found in Table E1 in ESM 2.

### Questionnaires

#### Art-of-Living

To test whether the training increased AoL in the first place, we applied the German Art-of-Living Inventory (AOLI; Schmitz et al., 2021). It consists of 11 subscales which are

**Table 1.** Study design

Group	Time			
	T1	Intervention	T2	T3
Cognitive	Pretest	Cognitive components	Posttest	Follow-up
Combined	Pretest	Cognitive and body-related components	Posttest	Follow-up
Control	Pretest		Posttest	Training

Note. Participants in the wait list control group could start with their training individually 1 day after the posttest.

*self-determined way of living* (e.g., “I take responsibility for my own life”), *self-knowledge* (e.g., “I make an effort to identify my personal strengths”), *savoring* (e.g., “I fully enjoy what life has to offer”), *bodily care* (e.g., “I take care of my body”), *positive attitude towards life* (e.g., “Even in uncertain times, I usually expect the best”), *reflection* (e.g., “I am often confused about the way I really feel,” reversed item), *meaning* (e.g., “I make clear to myself what my purpose in life is”), *optimization* (e.g., “I consistently pursue the goals I set for my life”), *serenity* (e.g., “I stay calm even in difficult situations”), *coping* (e.g., “To solve a problem, I look at it from different angles”), and *social contact* (e.g., “I make an effort to stay in touch with my friends and acquaintances”; Schmitz et al., 2021, p. 3). Total AoL is calculated as the mean of these subscales. The 35 items are rated on a 6-point Likert-type scale ranging from 1 = *strongly disagree* to 6 = *strongly agree*. The questionnaire can be completed within few minutes and shows at least “good” reliabilities for all scales ( $\alpha = .80-.92$ , Schmitz et al., 2021). Applied to our study, the internal consistencies (Cronbach’s  $\alpha$ ) of the AOLI were excellent for total AoL ( $\alpha = .92$ ), and for the AoL subscales ranged from “acceptable” to “excellent,” apart from the subscale coping ( $\alpha = .67$ ) which was questionable and should be interpreted with caution.

### Well-Being

To measure well-being, we used the German version of the EPOCH Measure of Adolescent Well-Being (Kern et al., 2016). Applying Seligman’s (2011) PERMA model of well-being (*positive emotion, engagement, positive relationships, meaning/purpose in life, accomplishment*) to adolescents in the school context, the EPOCH measure is based on a five-factor positive psychological well-being theory focusing on individual strengths in youth which support PERMA, with a number of items referring to situations in school (Kern et al., 2016). Its five components are *engagement* (“the capacity to become absorbed in and focused on what one is doing, as well as involvement and interest in life activities and tasks”; e.g., “When I am learning something new, I lose track of how much time has passed”), *perseverance* (“the ability to pursue one’s goals to completion, even in the face of obstacles”; e.g., “I keep at my schoolwork until I am done with it”), *optimism* (“hopefulness and confidence about the future, a tendency to take a favorable view of things, and an explanatory style marked by evaluating negative events as

temporary, external, and specific to situation”; e.g., “I am optimistic about my future”), *connectedness* (“the sense that one has satisfying relationships with others, believing that one is cared for, loved, esteemed, and valued, and providing friendship or support to others”; e.g., “I have friends that I really care about”), and *happiness* (“steady states of positive mood and feeling content with one life, rather than momentary emotion”; e.g., “I have a lot of fun”; Kern et al., 2016, p. 587), with four items capturing each. The 20 items are rated on a 5-point Likert scale from 1 = *almost never* to 5 = *almost always*. The total well-being score is calculated as the aggregated mean of these scales. The questionnaire can be completed within few minutes and generally holds adequate psychometric properties with Cronbach’s  $\alpha = .90$  for overall well-being (Kern et al., 2016). The reliabilities of the EPOCH measure in this study were “excellent” for overall well-being ( $\alpha = .91$ ), and ranged from “acceptable” to “excellent” for the well-being subscales.

### Description of the Intervention

The general aim of the training was to strengthen selected AoL strategies within a short amount of time by explaining the background, reflecting on them, and presenting ways to include them in everyday life. To keep the study at a suitable scope for short-term online training for students and to examine whether training of selected AoL components could enhance total AoL, the intervention focused on five AoL components. The components were selected with regard to ease of implementation and to fit the target group. For the cognitive group, these were self-determined way of living, self-knowledge, and coping. For the combined group, these were the body-focused components bodily care and savoring, in addition to self-knowledge and coping. For each selected cognitive AoL component, two self-reflection exercises were chosen. For the body-focused components, one exercise was chosen for each. In this way, the cognitive group received six cognitive exercises, and the combined group received four cognitive and two body-focused exercises (see Table 2). The waitlist control group was offered the cognitive training, and additionally, the two body-focused exercises as “bonus material.”

To create the exercises for our training, previously used instructions of PPIs, as well as recently developed AoL exercises (Schmitz et al., 2018), were chosen and adapted

**Table 2.** Art-of-living components with respective training exercises

Components and exercises	Summary
Self-determined way of living	
Achieving my goals <sup>a</sup>	Make a step-by-step plan on how to achieve your next goal considering possible obstacles and how to overcome them.
Applying my strengths <sup>a</sup>	How can you change a current situation you are not happy with by using your strengths?
Self-knowledge	
Good mood list <sup>b</sup>	Create a list of things you enjoy and think back to a memory of experiencing such things.
Getting to know my strengths <sup>b</sup>	What are your strengths when considering school projects, as well as in general, and which do you want to use more frequently?
Coping	
Managing difficult situations <sup>b</sup>	How did you solve a difficult situation in the past and what else could you do in the future?
My family and friends <sup>b</sup>	Create a list of people you can always rely on think of a situation when someone helped you out.
Bodily care	
A good sleep <sup>c</sup>	Introduce a small body-related ritual before going to sleep for the duration of the training. Why do you think it will help you relax?
Savoring	
Savoring consciously <sup>c</sup>	Focus on experiencing a snack you enjoy with all your senses. What did you think and feel?

Note. The wait list control group was offered all eight exercises. <sup>a</sup>Cognitive training only; <sup>b</sup>Cognitive and combined training; <sup>c</sup>Combined training only.

**Table 3.** Means (*M*) and standard deviations (*SD*) by condition

Variable	Cognitive group <i>n</i> = 24						Combined group <i>n</i> = 26						Control group <i>n</i> = 19			
	Pretest		Posttest		Follow-up <sup>a</sup>		Pretest		Posttest		Follow-up <sup>b</sup>		Pretest		Posttest	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
AoL	4.49	0.37	4.76	0.47	4.93	0.56	4.55	0.67	4.85	0.72	4.89	0.68	4.36	0.55	4.43	0.55
WB	3.58	0.60	3.78	0.64	3.83	0.74	3.67	0.58	3.98	0.71	4.00	0.70	3.60	0.66	3.63	0.74

Note. AoL = Total art-of-living; WB = Overall well-being. <sup>a</sup>*n* = 16; <sup>b</sup>*n* = 21.

to the students' context. The exercises applied in our training used instructions to guide self-reflection with a focus on positive emotions, strengths, resources, and personal goals. For the original exercises, refer to Figures E1-E8 in ESM 1 or see Table 2 for a short summary.

## Results

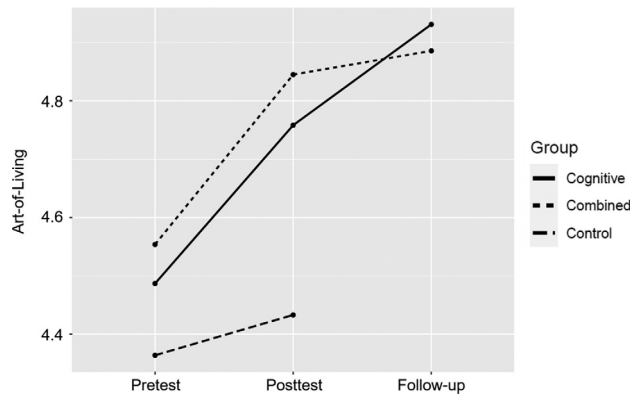
The data of *N* = 69 participants was analyzed applying analyses of covariances (ANCOVAs) controlling for the pretest, added by paired *t*-tests, at  $\alpha = .05$  (5%) in RStudio (R Core Team, 2019). One-way analysis of variances (ANOVAs; control group vs. cognitive group vs. combined group) revealed that there were no differences in AoL [ $F(2, 66) = 0.66, p = .517, \eta^2 = .02$ ] or well-being [ $F(2, 66) = 0.154, p = .857, \eta^2 < .01$ ] scores between the groups at pretest.

### Hypothesis 1

At the center of this study is the question of whether our short-term online training of selected AoL components enhanced the participants' well-being. As a first step, means (*M*) and standard deviations (*SD*) of AoL and well-being were calculated for each group, as presented in Table 3.

### Art-of-Living Scores

To test whether the intervention measurably increased AoL in the first place, we compared the development of the AoL scores between the first and second point of measurement in the intervention group with the control group. For this purpose, we conducted a one-way ANCOVA comparing the intervention group with the control group controlling for the pretest. The ANCOVA revealed that after adjusting for the pretest, AoL levels differed significantly between the groups at the posttest [ $F(1, 66) = 4.87, p < .031, \eta^2 = .07$ ] suggesting that AoL measures increased from the first to the second point of measurement for the intervention group whereas the control group's scores stayed at pretest level, as demonstrated in Figure 1. Paired *t*-tests between posttest and follow-up indicated that the intervention group's gains in AoL were still consistent at 2 weeks after the intervention [ $t(36) = -1.48, p < .147, d = -0.38$ ; for Cohen's *d*, the *SD* at pretest was used in the standardizer to correct for within-participant change; Table 4]. Looking closer at the trained AoL subscales (self-determined way of living, self-knowledge, coping, bodily care, and savoring), paired *t*-tests showed significant increases in the intervention group for self-determined way of living [ $t(49) = -2.22, p = .031, d = -0.22$ ] and self-knowledge [ $t(49) = -2.03, p = .048, d = -0.15$ , Table 4]. On the contrary, in the control group all



**Figure 1.** Development of art-of-living by condition.  $N = 69$  (cognitive group:  $n = 24$ , combined group:  $n = 26$ , control group:  $n = 19$ ).

scores but bodily care [ $t(18) = -3.54, p = .002, d = -0.39$ ] remained at pretest level.

### Training Effects: Well-Being Scores

To determine whether our training reached its goal of enhancing well-being, we compared the development of the well-being scores between the first and second point of measurement in the intervention group with the scores in the control group. Thus, we conducted another one-way ANCOVA to determine the difference between the intervention and control group on well-being controlling for the pretest. Pivotal to this study, we found a significant difference between the conditions at posttest, which confirms that well-being increased in the intervention group significantly more than in the control group as a consequence of the training [ $F(1, 66) = 4.49, p = .038, \eta^2 = .06$ ]. To examine if the training had lasting effects on the participants' well-being, we compared the intervention group's posttest scores with their follow-up scores using paired  $t$ -tests (Table 4). Results showed that increases in well-being were stable at 2 weeks after the intervention period [ $t(36) = -0.95, p < .348, d = -0.18$ ]. However, this trend could not be contrasted with the control group and should therefore be interpreted with caution.

## Hypothesis 2

The second objective of our study was to investigate if the inclusion of body-related AoL exercises led to greater gains in well-being for the combined group. Means and standard deviations of AoL and well-being for each group are presented in Table 3.

### Differences in Art-of-Living

Examining whether the different training conditions had effects on the groups' posttest AoL scores, we conducted one-way ANCOVAs to determine a difference between the cognitive and combined group on AoL controlling for

the pretest. There was no significant effect of the groups on total AoL [ $F(1, 47) = 0.08, p = .785, \eta^2 < .01$ ]. To investigate more closely possible minor differences between the intervention groups concerning each of the trained AoL components, we conducted paired  $t$ -tests (pretest and posttest) within each group (Table 4). As expected, self-determined way of living (only trained in the cognitive group) only increased significantly in the cognitive group [ $t(23) = -2.36, p < .027, d = -0.50$ ]. Surprisingly, for the remaining AoL components the following results were found: self-knowledge (trained in both groups) only increased in the combined group [ $t(25) = -2.28, p < .031, d = -0.33$ ]; coping (trained in both groups) increased significantly in the cognitive group [ $t(23) = -3.19, p < .004, d = -0.52$ ], and only approached significance in the combined group [ $t(25) = -1.99, p < .057, d = -0.40$ ]; savoring (only trained in the combined group) only increased in the cognitive group [ $t(23) = -2.40, p < .025, d = -0.40$ ], and bodily care (only trained in the combined group) did not increase in any of the groups.

### Differences in Well-Being

To test the hypothesis that training both cognitive and body-focused AoL components led to greater gains in well-being than training cognitive components only, further one-way ANCOVAs to determine a difference between the cognitive and combined group on well-being were calculated. Similarly, no significant group effect on well-being was found [ $F(1, 47) = 0.91, p = .346, \eta^2 = .02$ ]. However, as can be observed in Figure 2, well-being scores tended to rise more in the combined group than in the cognitive group. To closer examine possible differences between the two intervention conditions, the well-being scores of the cognitive and combined group were then each compared separately to the control group using ANCOVAs, revealing that well-being increased significantly more in the combined group than in the control group [ $F(1, 42) = 5.27, p = .027, \eta^2 = .11$ ] whereas there were no significant differences in well-being between the cognitive and the control group [ $F(1, 40) = 2.28, p = .139, \eta^2 = .05$ ]. Lastly, to compare the gains in well-being scores in each intervention condition, we consulted within-subject analyses (paired  $t$ -tests). We found that in both groups, overall well-being improved significantly over the intervention period, with greater increases in the combined group [ $t(25) = -3.54, p < .002, d = -0.52$ , vs.  $t(23) = -2.50, p < .020, d = -0.33$  in the cognitive group], which was stable at follow-up [combined:  $t(20) = -0.05, p < .963, d = -0.03$ ; cognitive:  $t(15) = -1.20, p < .251, d = -0.08$ ; Table 4].

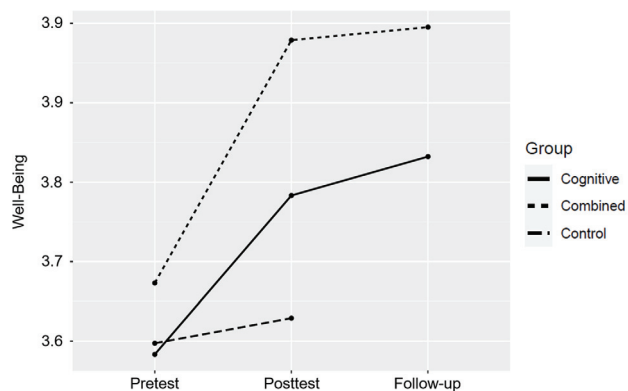
### Student Evaluation of the Training

Feedback about the training was collected from the participants regarding each exercise (e.g., "The exercise was

**Table 4.** Differences of the means between pretest–posttest and posttest–follow-up by condition

Variable	Group	Pretest vs. posttest				Posttest vs. follow-up			
		<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
AoL	Cognitive <sup>a</sup>	−3.55	23	.002	−0.74	−1.90	15	.077	−0.47
	Combined <sup>b</sup>	−2.79	25	.010	−0.43	−0.22	20	.831	−0.06
	Control <sup>c</sup>	−1.04	18	.310	−0.13				
SWL	Cognitive	−2.36	23	.027	−0.50	−1.83	15	.088	−0.57
	Combined	−0.96	25	.347	−0.17	0.80	20	.432	0.12
	Control	−0.09	18	.931	−0.02				
SK	Cognitive	−0.49	23	.629	−0.08	−0.13	15	.901	−0.19
	Combined	−2.28	25	.031	−0.33	0.44	20	.666	−0.02
	Control	0.30	18	.767	0.04				
CO	Cognitive	−3.19	23	.004	−0.52	−0.34	15	.736	−0.12
	Combined	−1.99	25	.057	−0.40	−0.55	20	.592	−0.06
	Control	< 0.01	18	1.00	0.00				
SA	Cognitive	−2.40	23	.025	−0.40	−0.81	15	.432	−0.32
	Combined	−0.65	25	.524	−0.11	−0.48	20	.639	−0.12
	Control	−1.07	18	.297	−0.15				
BC	Cognitive	−1.01	23	.323	−0.16	1.00	15	.333	0.13
	Combined	−1.32	25	.197	−0.14	−1.50	20	.149	−0.16
	Control	−3.54	18	.002	−0.39				
WB	Cognitive	−2.50	23	.020	−0.33	−1.20	15	.251	−0.08
	Combined	−3.54	25	.002	−0.52	−0.05	20	.963	−0.03
	Control	−0.44	18	.664	−0.05				

Note. AoL = Total art-of-living; SWL = Self-determined way of living; SK = Self-knowledge; CO = Coping; SA = Savoring; BC = Bodily care; WB = Overall well-being. Paired *t*-tests are reported. To calculate Cohen's *d*, the standard deviation at pretest was used in the standardizer to correct for within-participant change. <sup>a</sup>Pretest and posttest: *n* = 24, follow-up: *n* = 16; <sup>b</sup>pretest and posttest: *n* = 26, follow-up: *n* = 21; <sup>c</sup>pretest and posttest: *n* = 19.



**Figure 2.** Development of well-being by condition. *N* = 69 (cognitive group: *n* = 24, combined group: *n* = 26, control group: *n* = 19).

enjoyable”) as well as the training as a whole (e.g., “I would recommend the training”) to evaluate the perceived quality of the training from the student perspective and to be able to draw conclusions about the students’ motivation. To evaluate the participants’ responses to the training, mean, median, and standard deviation were calculated for each feedback item. In sum, no mean value of any feedback item was below five (*Rather agree*). For the majority of the exercises, most participants mostly or totally agreed that the exercise was fun and senseful. Regarding the training as a

whole, most participants totally agreed that they would recommend the training and that the required time effort was appropriate. The item “The training brought me further” showed the lowest rating with most participants rather agreeing. To every other item, most participants mostly agreed.

## Discussion

Student well-being (i.e., “optimal psychological functioning and experience,” Ryan & Deci, 2001, p. 142) decreases continuously in secondary school, and should be fostered (Hascher & Hagenauer, 2011). Recent studies in the field of art-of-living (summarizing all strategies that lead to well-being; AoL) indicate that AoL interventions could open up ways to contribute to the well-being and happiness of everyone, and students in particular (Schmitz, 2016). The present research examined the effects of a six-day online training of selected AoL components on eighth and ninth graders’ well-being, measured as engagement, perseverance, optimism, connectedness, and happiness (EPOCH; Kern et al., 2016; H1). Secondly, due to the relevance of physical aspects in well-being (Fox, 1999; Hassmén et al., 2000; Sianoja et al., 2018), we investigated whether the



inclusion of body-related AoL components could enrich the effect of cognitive AoL exercises in enhancing well-being (H2). Therefore, we introduced two intervention groups that differed in the selection of trained AoL components: The cognitive group received only cognitive AoL exercises, and the combined group received cognitive as well as body-related AoL exercises. Participants' AoL and well-being scores were measured 1 day before, 1 day after, and a fortnight after the training period, and compared to a waitlist control group.

Regarding H1, results indicated that the training caused significant increases in the participants' levels of AoL and well-being, with continuing effects at follow-up. As expected, within-subjects analyses suggested that well-being, as well as AoL scores, rose significantly in both, the cognitive and the combined group.

Regarding H2, results were rather ambiguous. We did not find any significant differences between the cognitive and combined group on AoL or well-being. However, within-subject analyses indicated that well-being scores tended to rise more in the combined than in the cognitive group. Moreover, we detected significant differences in well-being only between the control group and the combined group but not between the control group and the cognitive group. These more detailed analyses can be interpreted as indications that body-focused components tended to enrich the efficacy in enhancing well-being. On the contrary, levels of AoL differed only between the cognitive group and control group but did not between the combined group and control group.

There are several reasons that might be accountable for this ambiguity: (1) We assume that the body-related AoL components savoring and bodily care were not trained sufficiently due to the study design. There was only one exercise each concerned with the body-focused scales (whereas there were two exercises for each cognitive scale). It is likely that more body-related exercises are necessary in order to achieve measurable increases in these substantially behavior-based subscales. (2) Another explanation could be that the body-related exercises were not followed as strictly by the participants. The exercises, which asked the students to perform an unfamiliar action, might require more guidance, which was, however, not offered through the brief text-based online instructions. The collected feedback supports the notion that perhaps participants were bewildered by the body-focused exercises. (3) The unclear results might also be due to the interrelatedness of the AoL subscales. The AoL components covariate, meaning that the training of certain strategies can lead to measurable enhancement of the remaining AoL scales (Schmitz et al., 2021). It is imaginable that for some students, the reflections encouraged further thinking and possibly behavior change, resulting in spillover

between the cognitive and body-related components. (4) It is likely that the questionnaire was not able to capture possible gains in physical aspects of well-being which might have been induced by training bodily care and savoring. It is a weakness of our study that the EPOCH measure of adolescent well-being (Kern et al., 2016), which was chosen for its multi-dimensionality and applicability to our study population, did not include a body-related component. To closer examine the role and effect of body-focused AoL components on well-being in future research, a well-being measure should be chosen that explicitly includes physical components of well-being and is thus more sensitive to changes in those aspects.

Hence, we cannot finally conclude that training of a combination of cognitive and body-related AoL is superior in enhancing well-being to merely cognitive AoL training. Furthermore, the limited sample size of  $N = 69$  students and unequal distribution of male and female participants does not allow for final conclusions about the effectiveness of our training on secondary school students in general.

Nevertheless, our study contributes to the existing research on student well-being by examining the relationship between AoL and well-being and showing that the new approach of using AoL to enhance well-being is fruitful since follow-up measurement suggested that effects were still evident at 2 weeks after the intervention.

Finally, we confirmed that short-term online interventions can be effective in promoting well-being. The positive feedback to the training supports the assumption that the online training is attractive for adolescents, and face validity is fairly high. The most striking advantage of the short-term online format, which has become particularly evident during the COVID-19 pandemic, is that it offers great flexibility, with limited time and effort required for the provision and completion of the training.

The findings of our study are specifically relevant for school practice because well-being plays a significant role in academic achievement. Adler (2017) demonstrated in studies with more than 600,000 students across several countries that well-being training significantly increased the participants' achievement in standardized mathematics, language, and science tests (see also Kaya & Erdem, 2021; Suldo et al., 2011). Moreover, as other scholars have claimed (e.g., Hascher, 2004; Ryan & Deci, 2017), we believe that schools should promote well-being not only because of its performance-related effects, but even more so for its own sake and the plentiful desirable life outcomes related to well-being such as better health (Diener & Ryan, 2009) and better relationships (Diener, 2013). Concluding, pursuing the promotion of adolescent well-being in education is worthwhile, and we argue that it should be a concern and responsibility of educators to incorporate different

means to improve students' well-being in school, especially because adolescents' ratings of their satisfaction with life are lowest for the school domain (Huebner et al., 2005).

Online or in-person, AoL exercises are well suitable for this endeavor. Whereas Adler's (2017) well-being intervention was implemented in weekly sessions over the course of a year, our study implies that AoL exercises could support well-being increasing strategies in a much shorter amount of time. They are usually simple and appropriate for most ages (i.e., they can also be used for elementary school students, Lang & Schmitz, 2016), little resources are needed, and selected exercises can be used independently from one another. It is desirable that more AoL exercises as found in Schmitz and colleagues (2018) are designed and evaluated to form a pool of well-proven tools that can easily be implemented in the classroom on a regular basis, for example, in lessons or homework. More research should be directed at evaluating practicable and effective ways of tailoring AoL training to match students' contexts and the classroom framework. In order to maximize the effectiveness of such interventions, the question should be addressed as to how participants can be better encouraged to integrate AoL practices into their daily lives. In the long-term, it would be worthwhile to develop an app to facilitate the integration of AoL strategies into students' daily routines. However, the first step to the sustainable promotion of student well-being is that the importance of well-being must be acknowledged on different levels of the school system: politicians, teachers, parents, and students. We hope that more research will be conducted and disseminated in close relation to practice to raise awareness for our case.

To sum up, while we showed that our short-term online AoL training fostered secondary school students' well-being, the question remains unanswered whether body-related AoL exercises can enrich the effectiveness of a well-being intervention, and should be investigated further. The presented online training offers an effective tool to foster student well-being, which holds promising potential for large-scale application and use in schools.

## Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1027/2151-2604/a000501>

**ESM 1.** Figures E1-E8: This document contains screenshots of the original training exercises as used in the presented intervention.

**ESM 2.** Table E1: The table shows demographic characteristics of the sample for each condition and point of measurement.

## References

- Adler, A. (2017). Teaching well-being increases academic performance: Evidence from Bhutan, Mexico, and Peru. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 78(4-A).
- Bäuerle, S., & Kury, H. (1980). Stress in school. An experimental examination of 13–16 year old students. *Praxis der Kinderpsychologie und Kinderpsychiatrie*, 29(2), 70–76. [http://psydok.psycharchives.de/jspui/bitstream/20.500.11780/1404/1/29.1980-2\\_8\\_27804.pdf\\_new.pdf](http://psydok.psycharchives.de/jspui/bitstream/20.500.11780/1404/1/29.1980-2_8_27804.pdf_new.pdf)
- Biswas-Diener, R., Kashdan, T. B., & King, L. A. (2009). Two traditions of happiness research, not two distinct types of happiness. *The Journal of Positive Psychology*, 4(3), 208–211. <https://doi.org/10.1080/17439760902844400>
- Bolier, L., & Abello, K. M. (2014). Online positive psychological interventions: State of the art and future directions. In A. C. Parks & S. M. Schueller (Eds.), *The Wiley Blackwell handbook of positive psychological interventions* (pp. 286–309). Wiley Blackwell. <https://doi.org/10.1002/9781118315927.ch16>
- Bolier, L., Haverman, M., Westerhof, G. J., Riper, H., Smit, F., & Bohlmeijer, E. (2013). Positive psychology interventions: A meta-analysis of randomized controlled studies. *BMC Public Health*, 13(1), Article 119. <https://doi.org/10.1186/1471-2458-13-119>
- Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Erlbaum.
- Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review*, 30(7), 879–889. <https://doi.org/10.1016/j.cpr.2010.01.006>
- Chandla, S. S., Sood, S., Dogra, R., Das, S., Shukla, S. K., & Gupta, S. (2013). Effect of short-term practice of pranayamic breathing exercises on cognition, anxiety, general well being and heart rate variability. *Journal of the Indian Medical Association*, 111(10), 662–665. <https://europepmc.org/article/med/24968492>
- Chodkiewicz, A. R., & Boyle, C. (2017). Positive psychology school-based interventions: A reflection on current success and future directions. *Review of Education*, 5(1), 60–86. <https://doi.org/10.1002/rev3.3080>
- Diener, E. (2013). The remarkable changes in the science of subjective well-being. *Perspectives on Psychological Science*, 8(6), 663–666. <https://doi.org/10.1177/1745691613507583>
- Diener, E., & Ryan, K. (2009). Subjective well-being: A general overview. *South African Journal of Psychology*, 39(4), 391–406. <https://doi.org/10.1177/008124630903900402>
- Edlinger, H., & Hascher, T. (2008). Von der Stimmungs- zur Unterrichtsforschung: Überlegungen zur Wirkung von Emotionen auf schulisches Lernen und Leisten [From mood-instruction research to educational research: Reflections on the effects of emotions on school learning]. *Unterrichtswissenschaft*, 36(1), 55–70.
- Feierabend, S., Rathgeb, T., & Reutter, T. (2019). *JIM-Studie 2019. Jugend, Information, Medien. Basisuntersuchung zum Medienumgang 12- bis 19-Jähriger*. Medienpädagogischer Forschungsverband Südwest. [https://www.mpfs.de/fileadmin/files/Studien/JIM/2019/JIM\\_2019.pdf](https://www.mpfs.de/fileadmin/files/Studien/JIM/2019/JIM_2019.pdf)
- Feldman, D. B., & Dreher, D. E. (2012). Can hope be changed in 90 minutes? Testing the efficacy of a single-session goal-pursuit intervention for college students. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, 13(4), 745–759. <https://doi.org/10.1007/s10902-011-9292-4>
- Fox, K. R. (1999). The influence of physical activity on mental well-being. *Public Health Nutrition*, 2(3a), 411–418. <https://doi.org/10.1017/S1368980099000567>
- Gander, F., Proyer, R. T., & Ruch, W. (2016). Positive psychology interventions addressing pleasure, engagement, meaning,

- positive relationships, and accomplishment increase well-being and ameliorate depressive symptoms: A randomized, placebo-controlled online study. *Frontiers in Psychology*, 7, Article 686. <https://doi.org/10.3389/fpsyg.2016.00686>
- Hansen, J., Morgenstern, M., Janßen, J., & Hanewinkel, R. (2018). *DAK-Präventionsradar – Erhebung Schuljahr 17/18. Kinder- und Jugendgesundheit in Schulen* [DAK prevention radar – Survey school year 17/18. Child and adolescent health in school]. Institut für Therapie- und Gesundheitsforschung (IFT-Nord). <https://www.dak.de/dak/download/ergebnisbericht-2090980.pdf>
- Hascher, T. (2004). *Wohlbefinden in der Schule* [Well-being in school]. Waxmann.
- Hascher, T., & Hagenauer, G. (2010). Alienation from school. *International Journal of Educational Research*, 49(6), 220–232. <https://doi.org/10.1016/j.ijer.2011.03.002>
- Hascher, T., & Hagenauer, G. (2011). Schulisches Wohlbefinden im Jugendalter – Verläufe und Einflussfaktoren [Adolescents' well-being in school – Time courses and antecedents]. In A. Ittel, H. Merckens, & L. Stecher (Eds.), *Jahrbuch Jugendforschung* (pp. 15–45). VS Verlag für Sozialwissenschaften. [https://doi.org/10.1007/978-3-531-93116-6\\_1](https://doi.org/10.1007/978-3-531-93116-6_1)
- Hassmén, P., Koivula, N., & Uutela, A. (2000). Physical exercise and psychological well-being: A population study in Finland. *Preventive Medicine: An International Journal Devoted to Practice and Theory*, 30(1), 17–25. <https://doi.org/10.1006/pmed.1999.0597>
- Hayes, D., & Ross, C. E. (1986). Body and mind: The effect of exercise, overweight, and physical health on psychological well-being. *Journal of Health and Social Behavior*, 27(4), 387–400. <https://doi.org/10.2307/2136952>
- Herke, M., Rathmann, K., & Richter, M. (2019). Trajectories of students' well-being in secondary education in Germany and differences by social background. *European Journal of Public Health*, 29(5), 960–965. <https://doi.org/10.1093/eurpub/ckz049>
- Huebner, E. S., Valois, R. F., Paxton, R. J., & Drane, J. W. (2005). Middle school students' perceptions of quality of life. *Journal of Happiness Studies*, 6(1), 15–24. <https://doi.org/10.1007/s10902-004-1170-x>
- Huta, V. (2020). How distinct are eudaimonia and hedonia? It depends on how they are measured. *Journal of Well-Being Assessment*, 4(3), 511–537. <https://doi.org/10.1007/s41543-021-00046-4>
- Kaya, M., & Erdem, C. (2021). Students' well-being and academic achievement: A meta-analysis study. *Child Indicators Research*, 14, 1743–1767. <https://doi.org/10.1007/s12187-021-09821-4>
- Kern, M. L., Benson, L., Steinberg, E. A., & Steinberg, L. (2016). The EPOCH measure of adolescent well-being [Supplemental material]. *Psychological Assessment*, 28(5), 586–597. <https://doi.org/10.1037/pas0000201.supp>
- Lang, J., & Schmitz, B. (2016). Art-of-living training: Developing an intervention for students to increase art-of-living. *Applied Psychology: Health and Well-Being*, 8(3), 279–300. <https://doi.org/10.1111/aphw.12072>
- Lin, M. H., Chen, H., & Liu, K. S. (2017). A study of the effects of digital learning on learning motivation and learning outcome. *EURASIA Journal of Mathematics, Science and Technology Education*, 13(7), 3553–3564. <https://doi.org/10.12973/eurasia.2017.00744a>
- Liu, K., Duan, Y., & Wang, Y. (2021). The effectiveness of a web-based positive psychology intervention in enhancing college students' mental well-being. *Social Behavior and Personality*, 49(8), 1–13. <https://doi.org/10.2224/sbp.10459>
- Luthans, F., Youssef, C. M., & Avolio, B. J. (2015). *Psychological capital and beyond*. Oxford University Press.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9(2), 111–131. <https://doi.org/10.1037/1089-2680.9.2.111>
- Mendle, J. (2014). Why puberty matters for psychopathology. *Child Development Perspectives*, 8(4), 218–222. <https://doi.org/10.1111/cdep.12092>
- North, T. C., McCullagh, P., & Tran, Z. V. (2008). Effect of exercise on depression. In D. Lavallee, J. M. Williams, M. V. Jones, & A. Papathomas (Eds.), *Key studies in sport and exercise psychology* (pp. 258–284). Open University Press. <https://psycnet.apa.org/record/2008-03723-017>
- OECD. (2017). *PISA 2015 results (volume III): Students' well-being*. OECD Publishing. <https://doi.org/10.1787/9789264273856-en>
- Parks, A. C. (2014). A case for the advancement of the design and study of online positive psychological interventions. *The Journal of Positive Psychology*, 9(6), 502–508. <https://doi.org/10.1080/17439760.2014.936969>
- Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies*, 6(1), 25–41. <https://doi.org/10.1007/s10902-004-1278-z>
- R Core Team. (2019). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. <https://www.R-project.org/>
- Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52(1), 141–166. <https://doi.org/10.1146/annurev.psych.52.1.141>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Salmela-Aro, K., Kiuru, N., Pietikäinen, M., & Jokela, J. (2008). Does school matter? The role of school context in adolescents' school-related burnout. *European Psychologist*, 13(1), 12–23. <https://doi.org/10.1027/1016-9040.13.1.12>
- Salmela-Aro, K., Savolainen, H., & Holopainen, L. (2009). Depressive symptoms and school burnout during adolescence: Evidence from two cross-lagged longitudinal studies. *Journal of Youth and Adolescence*, 38(10), 1316–1327. <https://doi.org/10.1007/s10964-008-9334-3>
- Schmid, W. (1998). *Philosophie der Lebenskunst: Eine Grundlegung* [Philosophy of the art of living: Foundations]. Suhrkamp.
- Schmid, W. (2004). *Mit sich befreundet sein. Von der Lebenskunst im Umgang mit sich selbst* [Being friends with oneself. About the art of living in dealing with oneself]. Suhrkamp.
- Schmitz, B. (2016). *Art-of-living: A concept to enhance happiness*. Springer International Publishing AG. <https://doi.org/10.1007/978-3-319-45324-8>
- Schmitz, B., Schumacher, B., Schwarz, M., & Feldmann, F. (2021). Validation of a German and English version of the revised Art-of-Living Inventory. *European Journal of Psychological Assessment*, 38(2), 124–136. <https://doi.org/10.1027/1015-5759/a000650>
- Schmitz, B., Lang, J., & Linten, J. (2018). *Psychologie der Lebenskunst* [Psychology of art-of-living]. Springer.
- Schraml, K., Perski, A., Grossi, G., & Makower, I. (2012). Chronic stress and its consequences on subsequent academic achievement among adolescents. *Journal of Educational and Developmental Psychology*, 2(1), 69–79. <https://doi.org/10.5539/jedp.v2n1p69>

- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press.
- Sianoja, M., Syrek, C. J., de Bloom, J., Korpela, K., & Kinnunen, U. (2018). Enhancing daily well-being at work through lunchtime park walks and relaxation exercises: Recovery experiences as mediators. *Journal of Occupational Health Psychology, 23*(3), 428–442. <https://doi.org/10.1037/ocp0000083>
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta-analysis. *Journal of Clinical Psychology, 65*(5), 467–487. <https://doi.org/10.1002/jclp.20593>
- Smith, J. L., & Hollinger-Smith, L. (2015). Savoring, resilience, and psychological well-being in older adults. *Aging & Mental Health, 19*(3), 192–200. <https://doi.org/10.1080/13607863.2014.986647>
- Steger, M. F. (2005). *Development and validation of the Meaning in Life Questionnaire: A measure of eudaimonic well-being*. ProQuest Dissertations Publishing. <https://www.proquest.com/docview/305484590/previewPDF/B6CAC3EA3F474843PQ/1?accountid=9851>
- Suldo, S., Thalji, A., & Ferron, J. (2011). Longitudinal academic outcomes predicted by early adolescents' subjective well-being, psychopathology, and mental health status yielded from a dual factor model. *The Journal of Positive Psychology, 6*(1), 17–30. <https://doi.org/10.1080/17439760.2010.536774>
- Tuominen-Soini, H., Salmela-Aro, K., & Niemivirta, M. (2008). Achievement goal orientations and subjective well-being: A person-centred analysis. *Learning and Instruction, 18*(3), 251–266. <https://doi.org/10.1016/j.learninstruc.2007.05.003>
- Veenhoven, R. (2003). Arts-of-living. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being, 4*(4), 373–384. <https://doi.org/10.1023/B:JOHS.0000005773.08898.ae>

### History

Received October 29, 2021

Revision received February 14, 2022

Accepted February 26, 2022

Published online July 1, 2022

### Publication Ethics

The study was approved by the Ethics Committee of the Technical University Darmstadt.

### Funding

We acknowledge the support by the Deutsche Forschungsgemeinschaft (DFG – German Research Foundation). Open access publication enabled by the Technical University Darmstadt.

### Bernhard Schmitz

Department of Psychology  
 Technical University Darmstadt  
 Alexanderstraße 10  
 64283 Darmstadt  
 Germany  
[schmitz@psychologie.tu-darmstadt.de](mailto:schmitz@psychologie.tu-darmstadt.de)