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Was Hercules Happy? Some Answers from a Functional Model of Human Well-being

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Abstract The article proposes a functional approach as a framework for the analysis of human well-being. The model posits that the adaptive role of hedonic feelings is to regulate stability and homeostasis in human systems, and that these feelings basically are created in states of equilibrium or assimilation. To regulate change and growth, a distinct set of feelings exists, which may be labeled eudaimonic feelings. Eudaimonic feelings are produced to motivate behavior in challenging environments, when a quick return to equilibrium is dysfunctional, or when accommodation of cognitive structures is needed for a stimulus or event to be perceived as meaningful. It was hypothesized that a trait-like concern for evaluation of outcomes in terms of goodness or badness, referred to as hedonic orientation, will moderate the relation between equilibrium/assimilation and hedonic feelings. The model also includes the concept of eudaimonic orientation, reflecting a stable tendency to get involved in challenging activities and to create and strive after demanding goals. It was hypothesized that a eudaimonic, and not a hedonic, orientation moderates hedonic feelings in challenging episodes. Three different studies gave empirical support to the model.

Keywords Life satisfaction · Personal growth · Pleasure · Interest · Challenge · Functional well-being

1 Introduction

As a young man, so the ancient tales have it, the legendary Hercules came to a fork in the road. In front of him, one path led over flowery meadows toward the darkening distance;

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another path was passing over rough stones and rugged, brown furrows. The boy gravely considered which of two roads he should follow when a young maiden called upon him: "Follow this flowery way, and I will make it a delightful and easy road. Come with me and you shall taste every kind of pleasure". Tempting him from the other path, a maiden promised no escape from pains and labor: "If you would gain friendship of good men, you must study to oblige them; if you would be honored by your country, you must take care to serve it. You must become master of all the qualifications that can make you so, and these are the only terms and conditions upon which I can propose happiness".[1]

The Hercules myth illustrates the contrast between two key ideas in the search for a good life, and the tension between pleasure and struggle continues to capture the attention of happiness researchers. In his theory of authentic happiness, for example, Seligman (2002) proposes that an orientation towards pleasure is a different (and less successful) route to happiness, compared with orientations toward virtues or engagement. Ryan and Deci (2001) argue in related ways, by proposing a distinction between hedonic well-being and eudaimonic well-being. Hedonic well-being is equated with pleasure and happiness, while eudaimonic well-being includes the fulfillment of psychological needs and the idea of a fully functioning person.

Variations of these views are present in a number of well-being approaches (for recent overviews, see Deci and Ryan 2008; Kashdan et al. 2008; Waterman 2008), and the aim of our paper is to draw on, and extend, this literature. At the level of emotions, and tempted by the first of Hercules' maidens, we tested the idea that a happy feeling results, not from striving, but rather from the pleasure of need fulfillment and goal achievement. Our three studies further tested the idea that the challenge of goal striving produces feelings of interest rather than happiness. At another level, more stable elements of well-being like life satisfaction and personal growth, are proposed to moderate the feeling dimension of happiness. We suggest that life satisfaction moderates happiness in easy situations, whereas personal growth moderates happiness in challenging situations.

2 Hedonic and Eudaimonic Well-being

A number of important inferences will arguably ensue if functional theories of emotions (e.g., Damasio 1994; Oatley 1992; Panksepp 1998) can be shown to have implications for human well-being. The paper assumes this to be the case and suggests that a distinction between hedonic and eudaimonic elements of well-being is needed to fully account for the implications of emotional functionality. Our model further separates hedonia and eudaimonia into an emotional component and a dispositional component.

The first element in our model echoes Kahneman (1999) in claiming that the concept of hedonic well-being (HWB) refers to a single dimension of evaluations in terms of goodness and badness. Beginning with Wundt (1896), a series of empirical studies have showed that human beings tend to use terms such as good, pleasant, happy and satisfactory relatively interchangeably (Eckblad 1963; Osgood et al. 1957; Reisenzein 1992; Russell 1980; Schlosberg 1954; Tesser and Martin 1996; Thyer 1996). Hence, HWB is considered to be an umbrella term for subjective experiences and evaluations that are organized as bipolar opposites, such as good–bad, happy–sad, pleasant–unpleasant, and

[1] The fable of Hercules exists in many versions (Grayling 2007). The one described here is adapted from Xenophon and retrieved from http://www.rickwalton.com/folktale/holid064.htm.

satisfied–dissatisfied.[2] We further believe that goal achievements, fulfillment of needs, and the perception of familiar or simple structures are the prime causes of high HWB.

Governed by mechanisms different from the hedonics of equilibrium, our model proposes that eudaimonic well-being (EWB) reflects states that are perceived favorably, even if equilibrium is slightly disrupted. Given that EWB has a distinct phenomenology reflected in feelings such as interest and engagement, the emotional part of EWB prompts an action-readiness for growth behavior located in an area between the pleasure of equilibrium and the unpleasant, and often alarming, state of critical divergence from equilibrium. Representing an opportunity to build skills and develop potentials, eudaimonia deals with episodes of disequilibrium, challenges and the cognitive processing of novel or complex structures.

2.1 Hedonia as a Feeling State

The idea that states of equilibrium, and the return to equilibrium (or homeostasis), produces happiness and pleasure is widespread. The basic principle is simply that to sustain a homeostatic balance, brain mechanisms have evolved to generate distress when we deviate from a "set-point", and pleasure appears when we undertake acts to alleviate disequilibrium. Just as the ability to discriminate (cognitively) among aspects and objects in our surroundings is necessary for survival, so is the ability to ascribe hedonic quality to the physical and social world. Our existence would be in jeopardy indeed, if, for example, the taste evoked by toxins was good and sugar tasted unpleasant (Johnston 2003). Variants of this argument can be found in an almost unlimited number of books and articles (for instance, Beebe-Center 1965; Berlyne and Madson 1973; Berridge 2003; Cabanac 1992; Fredrickson 1998; Frijda 1994; Higgins 2006; Izard 1977; Mandler 1984; Marshall 1998; Panksepp 1998; Rolls 2005; Rozin 1999; Schulze 1995; Tomkins 1970; Turner and Silvia 2006; Walker 1981; Winkielman et al. 2003; Young 1961; Zajonc 1968).

The experiential consequences of being in equilibrium, or returning to a homeostatic set-point, are not restricted to feelings of pleasure and happiness. In evaluating one's bodily well-being, the term satisfaction has a similar connotation (e.g., Ekman 1994). Hence, using satisfaction as an indicator of need fulfillment and goal achievement becomes, as pointed out by Heider (1958), almost tautological. The tight connection between satisfaction and need fulfillment is also evident in the wording of instruments used to measure the concept. For instance, in the Satisfaction With Life Scale (Diener et al. 1985), several items explicitly ask about need fulfillment and goal achievement (e.g., "So far I have gotten the important things I want in life", and "In most ways my life is close to my ideal").

Note that the state of, or return to, equilibrium is not limited to physical homeostasis or need fulfillment. In theories of self-regulation, human goals, values and ideals are considered to be regulated by cybernetic principles, and goal achievement becomes the equivalent to a return to equilibrium. For example, Carver and Scheier (2001) suggest that feelings arise as a consequence of feedback in a cybernetic regulation system. Rapid progress toward a wanted goal is a signal of well-doing, and creates feelings of elation or joy. Progress away from an unwanted outcome creates relief. Variants of this idea are commonly accepted, and even if details may differ the basic notion is that goal achievement is analogous to a return to a set point or to equilibrium. Accordingly, a huge literature suggests that

[2] We are, of course, well aware of arguments against the view of affective bipolarity, such as those presented by Cacioppo et al. (1997) or Schimmack (2008). We nevertheless allay with arguments in favor of the bipolar approach (e.g., Barrett et al. 2007; Kahneman 1999; Russell and Carroll 1999).

pleasure is created when goals are achieved (Austin and Vancouver 1996; Boldero and Francis 2002; Heath et al. 1999; Oettingen et al. 2001; Winkielman and Cacioppo 2001).

Theories and evidence are also available to suggest that cognitive processes of assimilation produce pleasant feelings and happiness. All other things being equal, familiarity seems to generate a hedonic feeling (e.g., Berlyne 1960; Eckblad 1981; Gaver and Mandler 1987; Ginsburg and Opper 1969; Kubovy 1999; Mandler 1984; Piaget 1952; Vittersø 2004; Vittersø et al. 2000; Winkielman et al. 2003).

2.2 Eudaimonia as a Feeling State

The literature cited in the previous paragraph offers explanations as to why slight disruptions from equilibrium should produce feelings of interest rather than happiness (or negative emotions) as well. In their analyses of emotional responses to music, for example, Gaver and Mandler (1987) suggest that interest is an index of deviation from typicality. Following these authors, great works of music may be considered interesting, even if it is not considered pleasant, because they will have such a complex structure that it cannot be easily assimilated. To explain phenomena such as these, Berlyne (1971) advanced a theory in which a motivational system, different from the drive for equilibrium, guides the organism when it seeks out and appreciates the complex and unexpected. The regulating mechanism in Berlyne's motivational system is the emotion of interest (for related views, see Fredrickson 2000; Izard 1977).

From an appraisal-theoretical point of view, Silvia (Silvia 2001, 2005; Turner and Silvia 2006) has proposed that interest involves an appraisal of novelty–complexity, followed by an appraisal of coping potential. In neurophysiology, several theories argue in favor of separating the emotion of interest from that of pleasure or happiness. For instance, Panksepp (1998) claims that a separate emotion system may account for exploratory behavior and the feeling of interest. Referred to as the SEEKING system, Panksepp speculates that engagement and interest generate and sustain curiosity in humans, even for intellectual pursuits. The feeling experienced during this emotional state is not pleasure as such, but the *expectation* that pleasure will be experienced.

Given the perspective presented above, it seems reasonable to make a conceptual distinction between the feeling of happiness and the feeling of interest. It should follow that separate causes may be identified for the two kinds of emotions, and that the output, or *having achieved* (goals, needs, conceptual understanding) as opposed to the throughput, or *being in the process of achieving* (goals, needs, conceptual understanding) create happiness and interest, respectively. Our next task will be to link these causal mechanisms to stable dispositions in orientation to evaluating outcomes in terms of goodness or badness, as opposed to an orientation to the processes itself. The latter reflects a concern for the process of coping with challenge in itself, a state in which no attention is paid to the outcome. We consider each of these orientations in turn.

2.3 Hedonia as an Orientation

We shall argue that some individuals are basically oriented towards the hedonic or evaluative aspects of their lives. Such a disposition is trait-like, since it reflects a relatively lasting and consistent concern for judging the output of an action along the dimension of good and bad. We further claim that this tendency is partly captured by self-reports of life satisfaction. The logic of this thesis rests on the following arguments.

Weitz (1952) demonstrated more than 50 years ago that self-reported job satisfaction was influenced by individual, or trait, characteristics. He discovered that satisfaction scores were

partly affected by personality differences unrelated to the target of the evaluation. For example, people who were dissatisfied with their job also rated 44 neutral items common to everyday life as dissatisfying (cited in Diener et al. 2002). More recently, Vittersø and Søholt (2008) found that individuals with high scores on a measure of life satisfaction also rated ambiguous drawings of an unknown person as more pleasant than their dissatisfied counterparts.

In a panel study using measures of global happiness, Lyubomirsky and Ross (1999) found, in the follow-up part of the study, that happy participants positively readjusted their initial preferences for the colleges they ultimately had chosen, and downgraded their initial judgments of colleges they ultimately rejected. Manchin (2007) showed that citizens in the happiest capitals in Europe, not only scored high on subjective well-being, but also over-reported the number of sunny days for the last months. The citizens in the least satisfied capitals underreported the number of sunny days.

In a reaction time study, satisfaction with life was found to correlate with the time it took to detect a smiling face (among neutral faces), and to the time participants spent looking at a happy as opposed to a sad face (Vittersø et al. 2009). Finally, Schimmack et al. (2008) demonstrated, with data from a large sample of the overall population of Germany, how a general evaluation factor contributed variance to a measure of life satisfaction. Together, these studies suggest that a general orientation towards the goodness or badness of a situation is captured by commonly used life satisfaction measures.

To say that a portion of the variance in life satisfaction measures is accounted for by a general concern for evaluating stimuli in terms of goodness and badness is, of course, not to say that all the variance in such variables are caused by the evaluation orientation. Hedonic well-being measures have proven to be sensitive to changes in life circumstances and variations in other theoretically relevant variables (Diener 1994; Headey 2008; Kahneman and Krueger 2006; Lucas 2007; Lucas and Clark 2006; Lyubomirsky et al. 2005). However, we assume that the proportion of life satisfaction variance generated by a bias towards judging something as good rather than bad is sufficiently large to justify the use of life satisfaction as an indicator of the stable element of hedonic well-being.

2.4 Eudaimonia as an Orientation

There is nothing new in the idea that eudaimonic well-being has trait characteristics. In psychological literature, eudaimonia has often been juxtaposed with the concept of personal growth, which again has strong connotations to a person's stable disposition towards curiosity, openness, seeking out challenges, persistence in goal pursuits and realizing one's potential (e.g., Aspinwall and Staudinger 2003; Dweck 2006; Kashdan and Steger 2007; Ryan and Deci 2001; Waterman 2008). From the broad literature on personal growth, four elements have been elected to represent the trait elements of eudaimonic well-being in the current paper. The four elements are curiosity, absorption, complexity, and competence, and will be further described in the Sect. 4.1 in Study 1. For now, let it suffice to mention that we use the term personal growth to represent the trait aspect of eudaimonic well-being, and that we believe this orientation reflects an individual tendency for valuing efforts and challenges, to be orientated towards processes rather than outcomes and to pay attention to aspects in the circumstances with a potential for skill improvement.

2.5 Hedonic and Eudaimonic Orientations as Moderators of Emotions

Emotion states are subjected to regulation processing during which they are modified or maintained, and individuals differ considerably in their ability to effectively increase or

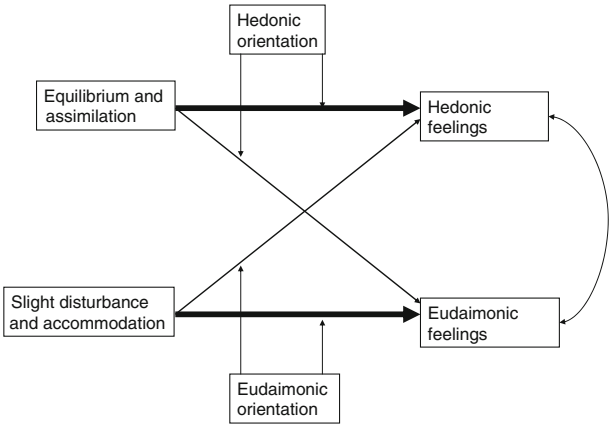

Fig. 1 Hedonic and eudaimonic elements of well-being

maintain both positive and negative moods (Larsen 2000). For instance, extraverts increase positive affect more than do introverts when watching a comedy or viewing pleasant photographs (Larsen and Ketelaar 1991), and Lischetzke and Eid (2006) found that, compared with introverts, extraverts were better able to maintain a positive affect balance after a mood induction procedure.

In accordance with the notion that moderators are important in emotional processes, our model proposes that a hedonic orientation has an effect on the feelings generated by equilibrium and assimilation. The eudaimonic orientation, on the other hand, is a moderator for feelings generated by slight disequilibrium and accommodation. This dynamic is graphically depicted in Fig. 1.

The figure illustrates how equilibrium/assimilation is assumed to be the primary cause of hedonic feelings (thick arrow), even if equilibrium also may affect eudaimonic feelings to some extent (thin arrow). Second, accommodation and slight disruptions from equilibrium is the primary cause of eudaimonic feelings (thick arrow), although this state also may affect hedonic feelings to some extent (thin arrow).

The assumption that a hedonic orientation bears on the relation between equilibrium/assimilation and subjective feelings, while a eudaimonic orientation moderates the relation between slight disruption/accommodation and subjective feelings, is also spelled out in the figure, cf. the arrows pointing directly on the causal paths from environmental characteristics to subjective feelings. Finally, hedonic and eudaimonic feelings co-vary to some extent, even if they are conceptually distinct.

3 The Current Study

The present paper was written with the aim of investigating important distinctions between hedonic and eudaimonic well-being. Towards this goal we have articulated a model that permits the deduction of four hypotheses related to the dynamics between two dimensions (hedonic vs. eudaimonic) and two levels (feelings vs. orientations) of well-being.

3.1 Hypotheses

1. Non-challenging situations cause hedonic feelings.
2. Challenging situations cause eudaimonic feelings.
3. Hedonic orientation predicts hedonic feelings in non-challenging situations.
4. Eudaimonic orientation predicts hedonic feelings in challenging situations.

3.2 Operationalizations

As explained at length in the introduction, we have selected happiness as an indicator of hedonic feelings and interest as an indicator of eudaimonic feelings. To measure hedonic orientations we used a life satisfaction instrument and for eudaimonic orientations we used a composite measure of personal growth.

4 Study 1

4.1 Method

4.1.1 Participants

Data for the study were collected from 86 students (57% females) attending a Norwegian folk high school.[3] Their mean age was 19.5 years, with a range of 16–23 years and a standard deviation of 1.1. Two folk high schools were included in the study, and for both schools, all students enrolled in the outdoor recreation specialization were invited to take part.

4.1.2 Procedure

Returning from a week long winter hike, the students completed a questionnaire comprising two distinct parts. The first part was an ordinary questionnaire, containing the well-being items presented in the Sect. 4.1.3. Part 2 of the questionnaire was a Day Reconstruction Method (DRM) section. The DRM is an experience sampling technique, assessing how various activities and settings of the previous day were experienced. Participants reconstruct and report their activities and experiences during a set of episodes of the preceding day (Kahneman et al. 2004). Before the questions were presented, a brief introduction to the idea of DRM was given, after which each participant reported on five different episodes during the hike, and then reported on the hike as a whole.

4.1.3 Materials

Life satisfaction was measured with the Satisfaction With Life Scale (SWLS—Diener et al. 1985), a five item inventory with items such as "I am satisfied with my life" and "So far I have gotten the important things I want in life". Responses are given on a numerical rating scale running from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha for the SWLS was .77.

[3] Briefly, the folk high schools offer two-semester courses to their students in which they enjoy the freedom to work with topics and questions staff and students feel relevant to study. There is no set curriculum and there are no formal examinations in the system. The schools are open to everyone. Usually the minimum age for admission is 17 years.

Personal Growth was measured with the Personal Growth Composite (PGC). This scale comprises four subscales: Subscale A, Curiosity (Amabile et al. 1994) with 3 items; subscale B, Absorption (Kashdan et al. 2004) with 3 items; subscale C, Complexity (from Cattell's 16PF, available from IPIP 2002) with 3 items; and subscale D, Competence (from Cloninger's TCI, available from IPIP 2002) with 3 items. Participants responded to statements on a Likert-like response format from 1 (totally disagree) to 5 (totally agree). Example items are: "I enjoy trying to solve complex problems", "When I am participating in an activity, I tend to get so involved that I lose track of time", "I love to think up new ways of doing things", and "I can perform a wide variety of tasks" for curiosity, absorption, complexity and competence, respectively. A second-order personal growth factor has been shown to account for the relations among the four subscales (Vittersø and Straume 2009), and in the current study the 12 items were collapsed into a mean score variable labeled the Personal Growth Composite (PGC) with Cronbach's alpha = .77.

Emotions were measured, following the procedures of the Day Reconstruction Method, by asking respondents how much happiness and interest they felt in specific episodes. Responses were given on a numerical rating scale with the endpoints labeled 'not at all' (1) and 'very intensely' (7).

Difficulty. As part of the DRM section of the questionnaire, participants were asked to rate the level of perceived difficulty in each episode. Level of difficulty was measured on a bipolar scale, running from Easy at the lowest pole of the scale (1) to Difficult at highest pole of the scale (7). The easy–difficult variable was split by the median to create a group of episodes perceived by the participants to be easy, and a second group of episodes perceived to be difficult.

4.2 Results

Table 1 shows that the mean scores of happiness were significantly higher in the easy episodes ($M = 4.75$, $SD = 1.99$), compared with the difficult episodes ($M = 3.50$, $SD = 2.06$). Interest had significantly higher means in difficult episodes ($M = 5.03$, $SD = 1.65$) than in the easy episodes ($M = 4.55$, $SD = 1.89$). The differences were significant at $t(308) = 5.43$, $p < .001$; and $t(311) = -2.37$, $p = .018$ for happiness and interest, respectively. These results are supportive for the assumption that easy situations promote hedonic feelings and that difficult situations promote eudaimonic feelings.

In order to test hypothesis 3 and 4, a multilevel regression analysis of the Day Reconstruction Method data was conducted. Controlling for the within-participants variance across episodes, Fig. 2 shows that personal growth was a significant predictor of episodic happiness at the between-participant level ($\beta = .41$, $p = .042$), while life satisfaction was not ($\beta = -.02$, $p = .930$). However, in two subsequent analyses, where the easy and difficult episodes were modeled separately in two distinct analyses, the results changed. For the

Table 1 Means and standard deviations (SD) for happiness and interest in easy and difficult episodes (*N*, with 86 participants times 6 episodes = 313)

		Mean	SD
Happiness	Easy	4.75[a]	1.99
	Difficult	3.50[ab]	2.06
Interest	Easy	4.55[b]	1.89
	Difficult	5.03[b]	1.65

Note: Means that share an alphabet superscript differed from one another at $p < .05$

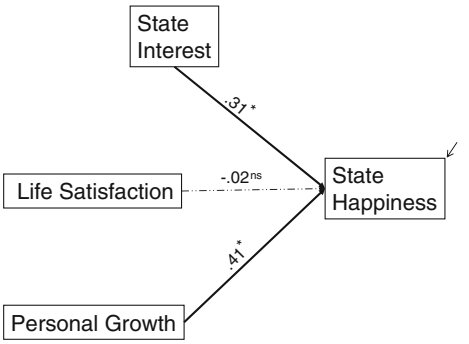

Fig. 2 Life satisfaction, personal growth and feelings of interest as predictors of happiness during episodes of a winter hike (between-participants level)

easy episodes, the between-participant analysis showed that life satisfaction significantly predicted episodic happiness ($\beta = .26$, $p = .043$), while personal growth did not ($\beta = .09$, $p = .582$). For the difficult episodes, personal growth predicted episodic happiness at a para-significant level ($\beta = .28$, $p = .089$), and life satisfaction was unrelated to episodic happiness ($\beta = -.04$, $p = .582$).

5 Study 2

5.1 Method

5.1.1 Participants

Participants were 108 students from two Norwegian universities, varying in age from 19 to 47 years ($M = 24.6$, SD = 5.4). We recruited 68 women (64%) and 38 men to the study.

5.1.2 Procedure

The questionnaire had two sections. The first was a collection of self-report inventories containing, among others, the Satisfaction With Life Scale and the Personal Growth Composite as presented in Study 1. In the second half of the questionnaire, participants were invited to solve a Sudoku puzzle. The objective of a Sudoku puzzle is to fill a 6 × 6 grid so that each column, each row, and each of the six 3 × 3 blocks within the larger grid contains the digits from 1 to 9 only one time each. Two numbers in each block were provided before they started, and an example (with a completed grid) was presented before the participants were asked to solve the real Sudoku puzzle.

5.1.3 Materials

Satisfaction with life was measured with the Satisfaction With Life Scale and the Cronbach's alpha was .91.

Personal Growth was again measured with the Personal Growth Composite and the Cronbach's alpha was .75.

Emotions. Happiness and interest were measured twice, first as state emotions before the Sudoku puzzle. The second measure took place immediately after completion of the puzzle, when participants were asked to report how happy and interested they felt during the Sudoku puzzle. The response options run from 1 (not at all) to 7 (very much).

Table 2 Means and standard deviations (SD) for happiness and interest before and during the Sudoku puzzle ($N = 100$)

Note: All means differed significantly from one another ($p < .05$)

		Mean	SD
Happiness	Before	5.23	1.38
	During	4.31	1.75
Interest	Before	4.76	1.36
	During	5.32	1.78

5.2 Results

The mean level of happiness was higher before the Sudoku puzzle than during the puzzle ($M_{before} = 5.23$, $SD_{before} = 1.38$; $M_{during} = 4.31$, $SD_{during} = 1.75$), and the difference was significant (paired-sample $t[99] = 5.50$, $p < .001$). The mean level of interest was higher during the puzzle than before ($M_{before} = 4.76$, $SD_{before} = 1.36$; $M_{during} = 5.32$, $SD_{during} = 1.79$). This difference was also significant (paired-sample $t[98] = -2.72$, $p = .008$). Table 2 shows that mean happiness was significantly higher than the mean interest before the puzzle (paired-sample $t[104] = 3.15$, $p = .002$), whereas mean interest was higher than happiness during the puzzle (paired-sample $t[99] = 6.37$, $p < .001$). These results are in favor of hypothesis 1 and 2.

A path analysis in which life satisfaction and personal growth were entered as predictors of the baseline happiness reported before the Sudoku puzzle was analyzed with the Study 2 data. In the model these three variables were further modeled as predictors of happiness during the puzzle. Figure 3 shows that life satisfaction was unrelated to the happiness experienced during the puzzle, but acted as a strong predictor of happiness before the task started ($\beta = .51$, $p < .001$). Personal growth had a direct effect on happiness both before ($\beta = .20$, $p = .046$) and during the problem solving task ($\beta = .30$, $p = .002$). Life satisfaction and personal growth were unrelated ($r = -.10$, $p = .217$). The path analyses supports hypothesis 3 and 4.

6 Study 3

6.1 Method

6.1.1 Participants

The data for our final study were extracted from a convenience sample (N = 41, 68% females). The mean age was 28.5 years ranging from 20 to 52 years with a standard

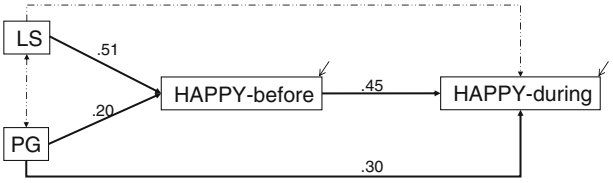

Fig. 3 Life satisfaction (*LS*) and personal growth (*PG*) as predictors of happiness before and during a problem solving task

deviation of 7.7. Participants were invited to a psychological laboratory for an investigation on emotion and problem solving and were offered a lottery ticked for participation.

6.1.2 Materials

Measures of life satisfaction, personal growth, and emotions were similar to those reported in Study 2.

6.1.3 Procedure

After the participants had completed a questionnaire containing the SWLS and PGC, they were given a problem solving task (a scramble sentence puzzle in which they were asked to make meaningful sentences out of a group of randomly presented words). After 5 min, the participants were interrupted by a research assistant, who said: "I am sorry to interrupt you, but we now want to know about your emotional feelings during the problem solving activity in which you were involved before this interruption". The participants then responded to 15 state emotion items, but only the happiness item will be analyzed here. When the form was completed, participants were given another scramble sentence task. After 5 min the participants were again interrupted, this time to finish the trial. The research assistant said: "You have now completed your part of this study. However, before you leave, we would like you to fill out the emotion form one last time, describing your feelings right now, as you have finished this trial". Again, only the happiness item from the inventory will be analyzed.

6.2 Results

Although the mean score of happiness was higher after ($M = 3.78$, SD = 1.25), than during ($M = 3.49$, SD = 1.14) the problem solving task, the difference did not reach significance (paired-sample $t[40] = 1.50$, $p = .142$). Interest was, however, higher during ($M = 3.86$, SD = 1.09) compared with after ($M = 3.50$, SD = 1.16) the task, with a paired-sample $t[40]$ value equal to -2.06, $p = .046$. These results failed to support the first hypothesis, but did support the second hypothesis (Table 3).

A path analyses (Fig. 4), showed that life satisfaction predicted self-reported happiness after the problem solving task was finished ($\beta = .34$, $p = .011$), but not during the task ($\beta = .20$, $p = .165$). Initially, personal growth did not predict happiness in this study. However, the subscale of curiosity did predict happiness during the task ($\beta = .39, p = .005$), but not after the task was finished. ($\beta = .09, p = .542$). Life satisfaction and curiosity were

Table 3 Means and standard deviations (SD) for happiness and interest during and after the anagram puzzle ($N = 40$)

		Mean	SD
Happiness	During	3.49[ac]	1.14
	After	3.78[a]	1.26
Interest	During	3.86[bc]	1.09
	After	3.50[b]	1.16

Note: a = the two means differed at $p = .062$; b = the two means differed at $p < .05$; c = the two means differed at $p < .05$

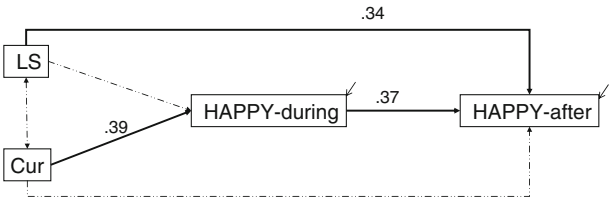

Fig. 4 Life satisfaction (*LS*) and curiosity (*Cur*) as predictors of happiness during and after a problem solving task

unrelated to each other ($r = -.10, p = .523$). If curiosity is accepted as a proxy for personal growth, the path analysis in Study 3 provided support for hypothesis 3 and 4.

7 Discussion

The current investigation demonstrated how hedonia is related to the pleasant and easy parts of life while eudaimonia connects with struggle and challenge. Episodes of goal attainment and equilibrium were found to increase happiness. The process of goal striving and events in slight disequilibrium reduced the feelings of happiness. The opposite pattern was found for feelings of interest, and perhaps most important, hedonically orientated individuals reported higher levels of happiness only in easy and non-challenging episodes. During struggle, it turned out to be people with a eudaimonic orientation who reported augmented happiness.

From one point of view, the association found between equilibrium/assimilation and happiness was expected, since it mirrors common sense and replicates results from a strong research tradition. Nevertheless, statements promoting the opposite view are not uncommon in the well-being literature. For example, Myers and Diener (1995, p. 17) claim that: "Happiness grows less from the passive experience of desirable circumstances than from involvement in valued activities and progress towards one's goal". Watson writes: "…it is the process of striving after goals—rather than attaining goals per se—that is crucial for happiness." (Watson 2002, p. 116). Our model suggests the opposite. Happiness grows from goal attainment and desirable circumstances whereas interest grows from striving after goals and active involvement in valued activities. The present paper has demonstrated that happiness is reduced during the process of striving and that life satisfaction is basically uncorrelated with positive emotions during episodes of hardship.

These results have consequences for how we think about life satisfaction and hedonic well-being. First, if the function of a happy feeling is a mental signal to ourselves, telling us that needs and goals are in balance (e.g., Damasio 1999; Panksepp 1998), being happy and satisfied basically means to be in a state of equilibrium. This is all good and well, but a body in constant equilibrium is not likely to change much. Hence, in the service of facilitating development and growth, feelings such as interest and engagement are needed in the regulation of a fully functioning person. If by a good life we mean one that adapts to environmental opportunities and demands, our article has showed that it is unlikely for such a life to be properly reflected by self-reports of happiness and satisfaction alone. Thus, an important message from our studies is that hedonic well-being does not capture the complete range of positive emotions in a fully functioning person. Satisfaction is a poor predictor of the eudaimonic feelings and can probably not account for the experiential

states that accompany the persistent striving towards challenging goals. This is, we believe, the Achilles heal of the one-dimensional approach of hedonic well-being.

The interest for happiness at organizational and governmental levels is growing (Cameron et al. 2003; Diener and Seligman 2004; Layard 2005). If the political ideal is to promote maximum happiness, and if happiness is believed to grow from active involvement and goal striving, our model predicts that societies may develop in unforeseen directions. The idea of Utopia may serve as an analogy to such an unfortunate development. Utopias tend to appear monotonous and boring in the long run, because they lack elements of challenge and struggle that are needed for a healthy development at both the individual and the societal level (e.g., Brickman and Campbell 1971; Nozick 1974; Parducci 1995; Tatarkiewich 1976). A striking example of a utopia-like destiny from the real world, is the fate of the people from Nauru. Initially named "Pleasant Island", this small pacific nation is now facing serious problems because of their excessive laissez-faire attitude. Due to a lucrative mining of natural resources, the people of Nauru could for a long period of time buy themselves out of every effortful task, including getting a job or going to school. As a result, the Nauru-people gradually became lazy, heavy-drinking and unhealthy. Today they also struggle with serious financial problems (Filseth 2001; McDaniel and Gowdy 2000). Although little is known about their scores on well-being measures, their lives seem to have been guided by the idea of maintaining a life in constant equilibrium, and avoiding efforts and challenges.

Elements of a sedentary lifestyle resembling the one observed in Nauru are gradually becoming a problem in many parts of the world, and measures of life satisfaction and happiness may be insensitive to such unfortunate developments. Hence, if the scientific community of happiness researcher feeds politicians and decision makers with information based on the most commonly used indicators of well-being (see Diener and Seligman 2004), advises may unintentionally steer away from conditions that are optimal for personal development.

7.1 Limitations and Further Questions

There is a striking imbalance in conceptual preciseness between hedonic and eudaimonic well-being (e.g., Kashdan et al. 2008). Hence, an obvious limitation to the present studies is reflected in our selection of indicators of eudaimonia. The general lack of conceptual agreement also implies a vagueness in the phenomenon we have coined "eudaimonic orientation". The notion of a stable and individually grounded tendency towards change and personal growth may be understood, and measured, in a variety of ways. Over time, such confusions are unfortunate and future research should strive to develop a more coherent theoretical framework.

The literature on eudaimonic well-being is divided among researchers who, at the end of the day, argue that happiness or satisfaction is the ultimate dependent variable even if their theoretical focus is on eudaimonia and personal growth (e.g., Keyes 2007; Ryan et al. 2008; Ryff and Singer 2008; Seligman 2002; Sumner 1996; Waterman 1993) and those arguing that eudaimonia is not about feeling states or judgments of life satisfaction, but deals with elements that are not properly captured by subjective experiences (e.g., Giovanola 2005; Haybron 2000; Kenny and Kenny 2006; Lane 1996; Nussbaum 2007). Our model is located between these two positions. We suggest that eudaimonia has a distinct phenomenology, but that the experience of eudaimonia feels different from happiness and pleasure. The feeling of eudaimonia is first and foremost characterized by interest and engagement. Although we have presented firm evidence in support of our

model, the literature we have reviewed is basically founded on concepts and results that run counter to our approach. More work is thus needed to establish a better understanding of the similarities and differences between eudaimonic well-being and hedonic well-being.

Regardless of definitional weaknesses, eudaimonic orientation was a somewhat unstable predictor of hedonic feelings in the context of challenge in Study 3. Only the subcomponent of curiosity predicted happiness in the scramble sentences task, thus the modified path model in Study 3 did not share the deductive strength of the first two studies. One reason for this instability could be related to the sensitive balance between too little and too much disequilibrium. It is reasonable to assume that individuals differ with regard to the degree of disequilibrium or accommodation they prefer. Future studies should strive to understand how the optimal balance between equilibrium and disruption may be identified and measured.

As always, the use of convenience samples makes it difficult to generalize results to a wider population. However, investigations that have compared student samples with representative samples generally find small differences (e.g., Visser et al. 2000), and we do not see why our studies should deviate from this general pattern. Nevertheless, uncertainties with regard to generalizations persist and replications from different samples and cultures are needed.

8 Conclusions

"Someone who is really virtuous will find virtuous actions in pursuits of noble goals a pleasure and not a burden" Aristotle said (cited in Kenny and Kenny 2006, p. 17). The present investigation shed some light on this issue, although we have not looked into virtues in the philosophical sense of the word. What we discovered was that even if a eudaimonic orientation augments the feeling of happiness in challenging situations, happiness is first and foremost a feeling that is created when life brings treats and goals are achieved.

If we return to the myths of Hercules, the pleasant way seems to be the most promising in terms of producing happiness in a restricted sense of the word. If happiness is taken to be something broader than feelings of pleasure and satisfaction, the easy way and the challenging way both contribute to a fuller life. Given that the concept of a good life depends on an ability to cope with a complex and changing world, the dynamics between equilibrium and struggle, as well as the dynamics between happiness and interest, must be cultivated. These insights may actually have been inherent in the Hercules myths. Some of them include a fascinating detail about the names of the two maidens that approached Hercules. Regarding the first, her enemies called her Pleasure. The enemies of the second maiden referred to her as Virtue. However, among their respective friends, both maidens were called Happiness.

In a broad sense, then, a truly happy life needs both pleasure and strivings, both favorable evaluations and eagerness for setting challenging goals. These elements reflect functional mechanisms that regulate the balance between stability and change. The current studies have demonstrated why the variety of human flourishing cannot be captured by concepts and measures of hedonic well-being alone. Instead, the functional model of well-being proposes that hedonic and eudaimonic dimensions, with emotional and dispositional elements, are all needed if the picture of a good life is going to be properly painted.

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