Empirical Associations between Psychological Resources and Sustainable Lifestyles

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For individuals, Hunecke stresses that a sustainable lifestyle not only encompasses ecologically sustainable, i.e., pro-environmental behavior (PEB). It also includes relatively stable patterns of pro-environmental values, attitudes, and beliefs that are guided by the principles of sustainable development. Six psychological resources were identified as precursors of a sustainable lifestyle in generall and PEB in particular which also promote subjective well-being.

pro-environmental behavior children adolescents personal resources well-being

1. Well-Being and PEB

According to Hunecke's [1] Pleasure-Goal Regulation-Meaning model, subjective well-being and accompanying positive emotions are the basis for a sustainable lifestyle and therefore for PEB. In a recent meta-analysis of 78 studies, a moderate correlation of r = 0.24 between subjective well-being and overall PEB was reported for adults [2]. Another meta-analysis concluded that nature connectedness was significantly associated with vitality (r = 0.24), positive affect (r = 0.22), and life satisfaction (r = 0.17) [3]. The few (quasi-) experimental studies included in the meta-analysis by Zawadzki et al. [2] suggested "that there is potential for creating a positive self-reinforcing cycle between pro-environmental engagement and subjective well-being, which may promote long-term environmental behaviors and enhanced subjective well-being" [2] (p. 11). Already experiencing oneself as pro-environmental, i.e., having a green self-image, was already associated with more life satisfaction in a large study with participants from 35 countries, 17 of which were not from WEIRD (Western, educated, industrialized, rich, and democratic; [4]) nations [5]. For children, positive relations between well-being, life satisfaction or positive emotions, and a sustainable lifestyle (including pro-environmental values and actions) were supported in samples from around the world. For example, a correlation of r = 0.26 between PEB and well-being (here: ratio of positive and negative emotions) was corroborated in a study with over 1900 fifth and sixth graders from Israel [6]. Life satisfaction was positively associated with connectedness to nature, beliefs in environmental behavior, and self-reported PEB (r = 0.59, r = 0.45, and r = 0.20, respectively) in a study with N = 120 10- to 19-year-olds from Spain [7]. Happiness was associated with connectedness to nature (r = 0.31) and self-reported PEB (r = 0.19) in a study with N = 296 9- to 12-year-olds from Mexico [8]. In a Swedish study, adolescents with higher life satisfaction showed more meaning-focused coping with climate change which was associated with PEB [9][10]. And in Italy, pro-environmental behavior was associated with personal and social well-being (both r = 0.21) in a sample of N = 1925 adolescents aged 14 to 20 years [11].

2. Construction of Meaning and PEB

Meaning-focused coping involves reflecting upon the meaning and benefits of a difficult situation. Because it tends to engender positive emotions like trust and hope [12], it can be considered a psychological resource. The just-mentioned empirical results from the studies by Ojala [9][10] support Hunecke [1] in modeling the construction of meaning to be one of the directional psychological resources that may foster both subjective well-being and actions toward a sustainable lifestyle.

More research supports the notion that engaging in meaningful activities is one of the mechanisms that may explain the link between subjective well-being and a sustainable lifestyle. Using an implicit association test, Venhoeven and colleagues [13] found that environmentally friendly actions were implicitly associated with positive emotions. After analyzing self-report questionnaires, they concluded that this relationship "is not merely a matter of social desirability, but rather a matter of meaning: acting sustainably is perceived as a moral choice and thus as a meaningful course of action, which can elicit positive emotions" [13] (p. 8). Klement and Terlau [14] concluded that college students who were involved in (extra)curricular activities in favor of sustainable development tended to report higher eudaimonic well-being related to self-discovery and meaning in life than a control group. Another study underlined the prominent role of environmental hope in promoting both PEB and the well-being of high school students. It highlighted the potential of hope-based programs to achieve both outcomes among adolescents [6]. Chawla [15] concluded in her literature review that constructive hope was an important resource for children and youth when it comes to coping with an increasingly degraded natural environment. In her review, she also presented empirical evidence to the effect that social trust [16] and social support [17] can give meaning to actions and thereby encourage children and adolescents. This leads to the psychological resource of solidarity.

3. Solidarity, Empathy, Compassion, and PEB

According to Hunecke [1], solidarity encompasses both personal responsibility for the welfare of other people and collective self-efficacy. Hill and Howell [18] established a link between prosocial spending and happiness, especially for adults with higher levels of self-transcending values, i.e., concern for other people. In another meta-analysis, Curry et al. [19] found acts of kindness and helpfulness to be related to well-being. Studies conducted within the framework of positive youth development (such as the model from the Australian Temperament Project; [20]) and models of global competencies confirmed Hunecke's [1] assumption that solidarity is also one of the directional psychological resources that may lead to more subjective well-being for adolescents. They established that solidarity in a broad sense was related to adolescents' positive development and emotional health [21]. That solidarity is important for the transformation toward a sustainable lifestyle in children and adolescents is confirmed by the results of Fielding and Head [22], who studied two samples of 12- to 17-year-olds and 18- to 24-year-olds. These authors concluded that attributing greater responsibility for the protection of the environment to the community was related to stronger pro-environmental intentions and actions. In contrast, attributing greater responsibility to the government for environmental protection was related to more negative environmental intentions and behavior on the part of the participants. Additionally, Jugert et al. [23] established experimentally that collective efficacy bolstered young adults' pro-environmental intentions by increasing their self-efficacy. Joshi and

Rahman [24] discovered that perceived consumer effectiveness was one of the key psychological determinants of young consumers' sustainable purchase decisions. In a recent survey on the Fridays for Future movement, young people in Germany reported that friends participating in the movement and identification with others engaging in climate protection were the strongest psychological drivers for their pro-environmental activism [25].

Solidarity in the sense of caring for other people, however, requires a certain amount of empathy and compassion [26]. Links between empathy and pro-environmental intentions, environmental values, and attitudes in children have been corroborated by several studies. In an experimental study, young children took either the perspective of a perpetrator or a victim of environmental harm. Results indicated that children in the victim perspective showed more empathy with the environment because they rated the harmful behavior to be more reprehensible than children in the perpetrator perspective [27]. Similar moral judgments were obtained in an intervention study with preschoolers who took the perspective of animals who were living in a forest [28]. Pearce et al. [29] specified that identifying with animals (as compared to landscapes) increased preadolescents' empathy and resulted in stronger anticipatory guilt over environmental degradation, which in turn stimulated their intentions towards pro-environmental behaviors. Empathic concern (for other people) among adolescents did not have a direct effect on intentions or self-reported PEB, but influenced PEB indirectly via its effects on behavioral, normative, and control beliefs [30]. Empathy towards animals furthermore mediated the positive relation between childhood attachment to a pet and the avoidance of eating meat as adults [31]. Intervention studies have demonstrated that children's empathy and prosocial behavior could be increased through mindfulness interventions in schools [32][33][34], which leads to the transformative psychological resource of mindfulness.

4. Mindfulness and PEB

In recent years mindfulness has gained much attention in (environmental) psychology because connectedness with the natural world is one of the tenets of mindfulness and compassion [35]. Ericson et al. [36] present four main reasons for the well-established positive impact of mindfulness practice on physical and mental well-being: (1) to be engaged in the present moment (and not in the past or the future) is positively correlated with happiness; (2) mindfulness increases empathy and compassion, which in turn tend to enhance social relationships; (3) mindfulness stimulates people to recognize their own values (instead of those promoted by society or commercials) and helps them to behave in accordance with them; and (4) with its stress on post-materialistic values, mindfulness can help in reducing the power of materialistic welfare on well-being. In Ericson's model, mindfulness also contributes directly to sustainable behavior because the chances to achieve personal well-being take center stage in peoples' awareness. When empathy and compassion increase through the practice of mindfulness, they support people in connecting with humans (and animals) in other parts of the world who are affected by unsustainable decisions, and with their natural environment and its degradation. Empirical relations between mindfulness and subjective well-being have been confirmed in meta-analyses for youth, e.g., [37]. For adults, there is evidence of an indirect connection with PEB by way of a decrease in materialistic values and an increase in subjective well-being [38][39]. In a systematic review, Fischer et al. [40] found some empirical support for their theoretical propositions that mindfulness contributes (1) to the disruption of mental and behavioral routines, (2) to a narrowing of the attitude-

behavior gap, (3) to an increase in non-materialistic values, (4) to an enhancement of well-being, and (5) to an increase in prosocial behavior. Because of these ideas, mindfulness was included in intervention programs that aimed at promoting PEB, e.g., [41]. A mindfulness-based intervention in schools showed a strong effect on precursors of sustainable consumption behavior in 15-year-olds [42]. After another four-month school-based training program with 10- to 12-year-olds, the intervention group showed a significant increase in pro-environmental beliefs, whereas the control group did not [43]. Even a short-term mindful activities intervention in a nature reserve with nine- and ten-year-olds resulted in an increase in their nature connectedness and their positive affect [44]. In an interview study, adult practitioners reported that they were able to enjoy their lives more fully since practicing mindfulness. They also appreciated the natural environment more intensely at the sensory level, which reinforced their emotional connectedness to nature at the level of experience [45]. Raising the awareness of sensory experiences or increasing the capacity for pleasure could be another mechanism by which mindfulness impacts the transition toward a sustainable lifestyle, e.g., [46].

5. Capacity for Pleasure and PEB

Hunecke [1] explains the capacity for pleasure as enjoying sensory experiences. In the literature, physical pleasure is considered to be part of hedonic well-being and may refer, for example, to the pleasure of eating a nice dinner, e.g., [47]. Bryant and Veroff [48] defined savoring as “the capacity to attend to, appreciate, and enhance the positive experiences in one’s life” (p. 2) and linked it directly to people’s well-being. In their diary studies with undergraduates, Oishi et al. [49] confirmed that the experience of physical pleasure was strongly associated with subjective well-being. Beyond the already reported links between subjective well-being and a sustainable lifestyle, the capacity for pleasure was specifically linked to a sustainable lifestyle: Nurse et al. [50] established that young adults’ motivation for sensory pleasure was positively associated with their nature-related behavior, such as hiking and visiting national parks, national forests, or wilderness areas. Apathy or lack of environmental concern toward environmental issues as well as anthropocentrism was negatively associated with the self-reported level of motivation for sensory pleasure [50]. Similarly, in a study with 8- to 12-year-olds, girls reported to be more strongly connected to nature than boys. This seemed to be a function of their more intensive sensory engagement with nature in visual, auditory, and tactile terms [51]. In another study, young adults’ pro-environmental purchasing was predicted by their intrinsic motivation to perform pro-environmental actions, i.e., because they enjoyed doing so [52]. Finnish college students’ enjoyment of the natural environment furthermore predicted their PEB via their intentions [53]. Unfortunately, most of these studies do not provide any insights into the direction of effects because they are correlational. However, since the capacity for pleasure is closely related to, if not part of, subjective well-being [54], it is likely that a sustainable lifestyle and the capacity for pleasure are mutually reinforcing (as noted earlier in this article).

6. Self-Acceptance and PEB

Self-acceptance is often seen as another dimension of well-being, e.g., [55], which is strongly linked to positive emotions as well [56][57]. In Hunecke’s [1] model, accepting oneself is one of the foundational resources that at first

sight may seem counterintuitive to promote a sustainable lifestyle because this is primarily concerned with achieving individual goals and needs. But self-acceptance can also be viewed as a resource in personality development, which can help in overcoming self-enhancement values (for example through consumption) and in developing self-transcendent values. Little research has been conducted on the predictive power of self-acceptance on a sustainable lifestyle. A closely related meta-analysis noted a significant positive association between self-acceptance and nature connectedness (r = 0.17) in four samples with N = 686 adults [58]. Participants in a nature-based intervention study reported that experiences of self-acceptance raised their expectations that they would be able to come to terms with future challenges [59]. In keeping with this, another intervention study demonstrated that adolescents' expeditions into the wilderness increased both their self-esteem (a construct which also includes aspects of self-acceptance; $r > 0.50$; e.g., [60]) and their nature connectedness [61]. The positive association between students' eco-anxiety and their intention to act pro-environmentally was moderated by the discrepancy between their self-perception and their desire to see themselves [62]. Indirect effects were underlined in a study by Queiroz et al. [63]. Self-esteem and environmental values were both higher in adolescents from homes that were characterized by parental warmth. Higher levels of self-esteem seem to be associated with giving environmental values greater priority. In an earlier study, a two-week environmental education camp boosted children's self-esteem, increased their curiosity about nature, and fostered their outdoor skills [64]. In summary, the research findings support the assumption that self-acceptance functions as a foundation or part of subjective well-being that helps young people develop and maintain a sustainable lifestyle.

7. Self-Efficacy and PEB

The other foundational psychological resource at the basic level of Hunecke's [1] model is self-efficacy. It is known to be a strong contributor to subjective well-being and positive emotions in adolescents [65]. As mentioned earlier, self-efficacy is a psychological resource that is frequently under study when examining individual preconditions for a sustainable lifestyle and for PEB. In Klöckner's [66] meta-analytic model, behavioral control—a construct closely related to self-efficacy—was a direct predictor of PEB. In a more recent meta-analysis, self-efficacy was the factor that was most closely related to behavior adapting to climate change [67]. Studies with adolescents indicated that self-efficacy contributed to forecasting their general ecological intentions which in turn predicted their general ecological behavior [68] and their self-reported PEB [22][30][69]. In addition, greater self-efficacy was associated with high school students' increased participation in climate activism [70]. Hunecke [1] assumes that both self-efficacy and self-acceptance function as resources to become more independent from social comparisons which in turn increases personal sustainability.

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